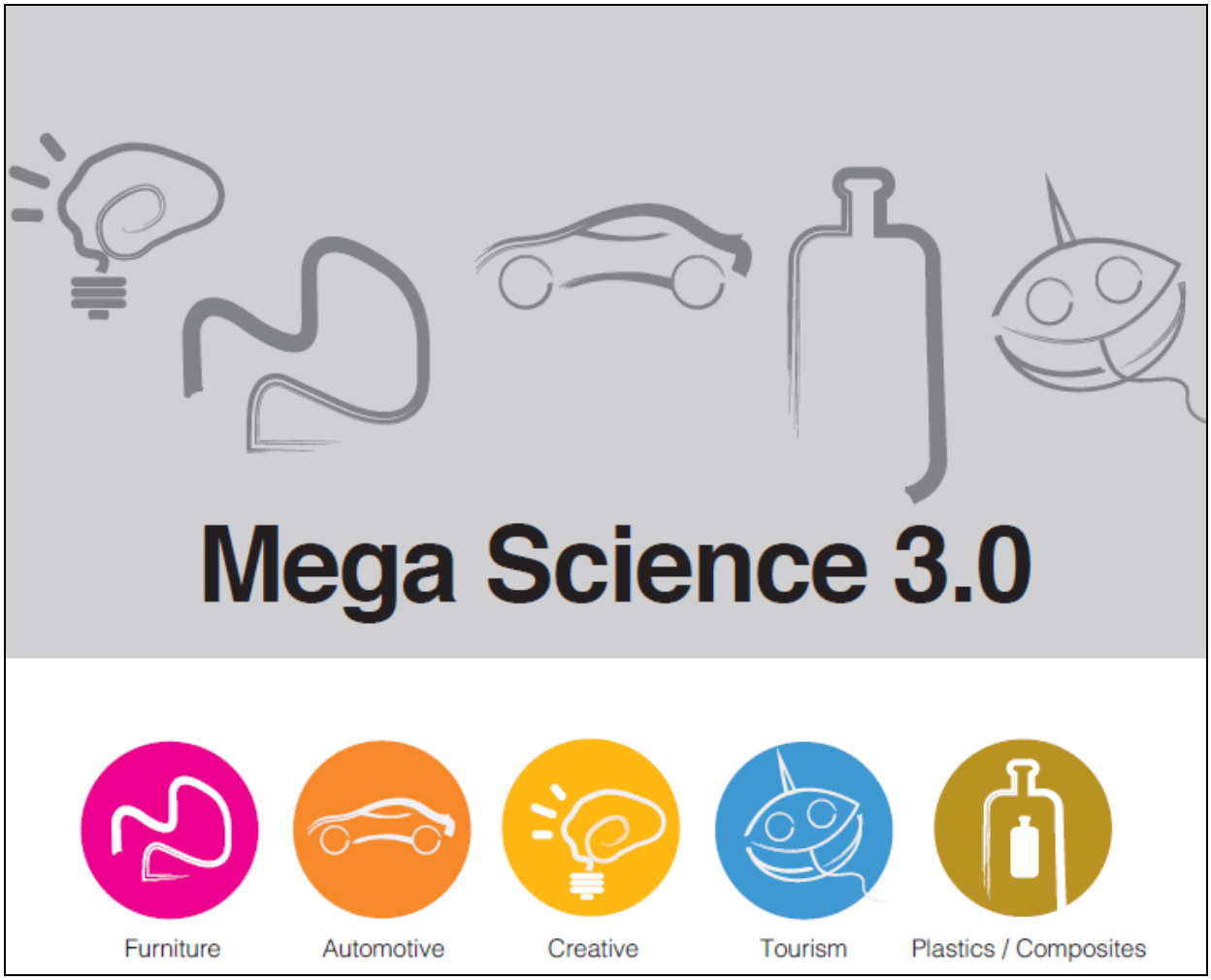

CREATIVE INDUSTRY SECTOR

FINAL REPORT

AKADEMI SAINS MALAYSIA

TABLE OF CONTENTS

Article 27

The Universal Declaration of Human Rights

EVERYONE HAS THE RIGHT FREELY TO PARTICIPATE IN THE CULTURAL LIFE OF THE COMMUNITY, TO ENJOY THE ARTS AND TO SHARE IN SCIENTIFIC ADVANCEMENT AND ITS BENEFITS

Article 31

The Convention on the Rights of the Child

State parties shall respect and promote the right of the child to participate fully in cultural and artistic life and shall encourage the provision of appropriate and equal opportunities for cultural, artistic, recreational and leisure activity

Jon Angelo Gjetting (@Gjetting) tweeted at 2:31 am on Wed, Aug. 31, 2016:

Most merely consume. Consume art, music, literature, and ideas. Peculiar and precious are those who create

(https://twitter.com/Gjetting/status/770690392962502657?s=03)

CHAPTER 1 OVERVIEW OF THE CREATIVE INDUSTRY

INTRODUCTION

According to UNDP/UNCTAD, in 2008, the world financial and economic crisis resulted in a contraction of 12% in international trade. However, the world export of creative goods and services continued to grow at an annual rate of 14% over six consecutive years, demonstrating that creative industries hold great potential for the world economy.

The term Creative Industry was coined in the UK in the late 1990s. The concept has since gained traction with governments in Asia, Australia, Europe, Latin America and the Caribbean and New Zealand. The Europeans, in particular, have taken this concept to greater heights through their "Creative Europe" strategy (Creative Europe, 2015). The definition of creative industries that is adopted for Mega Science 3.0 is the one outlined in the UNDP/UNCTAD report on the Creative Economy (UNDP/ UNCTAD, 2010). The classifications according to sub-sectors adopted are also derived from that report and illustrated in Figure 1.1 which shows the elements of each sub-sector.

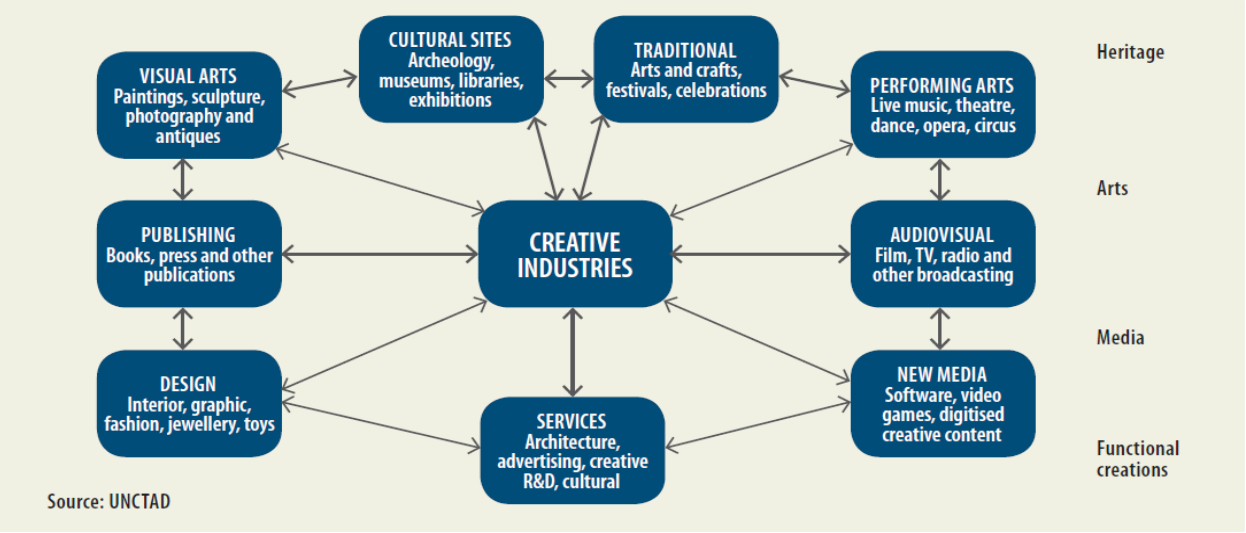

Figure 1.1 Classification of the Creative Industry (UNDP/UNCTAD, 2010)

For the purpose of the study, MS 3.0 has adopted the following focus areas:

(i) Heritage: Galleries, Libraries, Archeology and Museums (GLAM);

(ii) Arts: Visual Arts; Performing Arts; Traditional Arts and Crafts

(iii) Media: Publishing; Audiovisual; and New Media

(iv) Functional Creations: Built environment; Fashion and Jewellery; Graphic and Advertising

In this Report, the Heritage and the Arts sub-sectors are less developed as there were no experts who were prepared to lead the tasks from beginning to end. Stakeholders engagements were conducted by the MS 3.0 team through a series of dialogues, entitled “Teh Tarik Talk Series”

GLOBAL OUTLOOK OF THE CREATIVE INDUSTRY

The economic contribution of the creative industry globally is widely acknowledged. It is estimated to represent anywhere from 3% to 12% of global GDP (World Economic Forum, 2014). This industry is highly dependent on a robust economic footprint through its supply chain relationships with other sectors, generating output and employment in those sectors and increasing earnings in the wider economy. The integration of the creative industry into the economic rationale of nations is particularly challenging in the context of mixed economies, as the role of creativity as a driver of growth is often underestimated or ignored (M Mokena et al, 2015).

In the late 1990's the concept of 'the creative economy' was introduced by the Blair government in the United Kingdom. Its objective was to wield the increasing diversity of the British population, its radical lead in popular culture and to make the arts, as 'themes' to draw greater numbers of visitors to Britain, resulting in making the tourism industry one of the principal pillars of the British economy.

Recognising that globalization would lead not only to a breakdown of borders but a breakdown in cultural barriers, the concept of the 'creative economy' has been adopted and formalized as policy in regions ranging from Europe to Southeast Asia. It has been adopted by the European Union under the aegis of 'Creative Europe,' and by China who has developed a strategy that spreads across aspects of cultural sites to contemporary art, to contribute significantly towards the nation's GDP.

Indonesia, under the Susilo administration, identified 2025 as the benchmark year for a significant contribution of the Creative Economy to the National Economy of Indonesia and while many governments around the world have identified the Creative Economy sector as a principal contributor to the National Economy of their respective countries (including Malaysia) there have been serious shortcomings as agencies, bureaucracies and national institutions grapple with what a 'Creative Economy' may mean in their respective cultures.

Other, more practical problems have arisen with matters such as copyright and intellectual property as nations begin to realize the diversity of their populations and the diasporic nature of many of their communities. The continuing dispute over 'cultural ownership' between Malaysian and Indonesia serves as an example, and continues to impede the development of the Creative Industry.

The UK leads in terms of defining and maintaining statistics for the Creative Industry. In the UK, the Creative Economy includes the contribution of those who are in creative occupations outside the creative industries as well as all those employed in the Creative Industries. Meanwhile, the Creative Industries is a subset of the Creative Economy which includes only those working in the Creative Industries themselves (and who may either be in creative occupations or in other roles e.g. finance).

The Creative Industries are defined in the UK Government's 2001 Creative Industries Mapping Document as "Those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property".

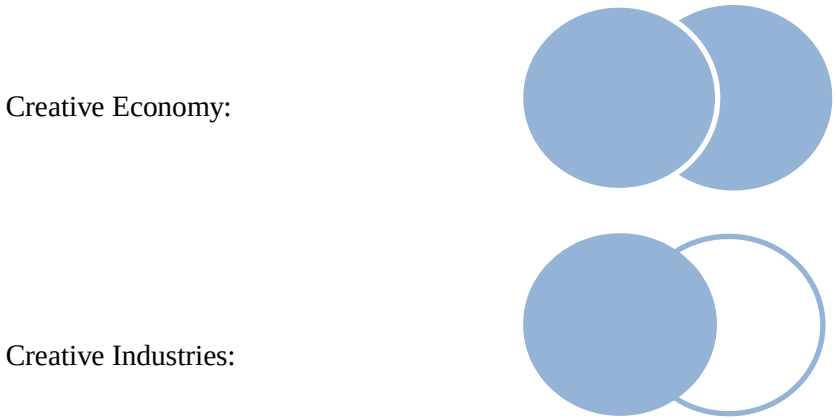

Figure 1.2 Symbols to indicate Creative Economy and Creative Industries (DCMS, 2016)

Using a new methodology, the study found that from 1997 – 2014, 2.8 million UK jobs were in the Creative Economy with a 5.0 per cent increase between 2013 and 2014 (2.6 million to 2.8 million jobs), compared to 2.1 per cent increase in the total number of jobs in the wider UK economy over the same period. Total employment in the Creative Industries (including both creative and support jobs) accounted for 1.8 million; 5.5 per cent increase between 2013 and 2014.

The Gross Value Added (GVA) of the Creative Industries increased by 6.0 per cent each year compared to 4.3 per cent for the UK economy. Furthermore, the GVA of the Creative Industries was 3.9 per cent of total UK GVA in 1997, but had increased to 5.2 per cent, amassing £84.1 billion in 2014.

Meanwhile, the value of services exported by the Creative Industries was £17.9 billion in 2013, a 3.5 per cent increase compared with 2012 and accounted for 8.7 per cent of total exports of services for the UK. The Creative Economy has grown by a quarter since 2011, at a rate faster than the whole of the UK economy, which grew 12.1 per cent. This rise has primarily been led by the growth of the Creative Industries (DCMS, 2016).

In the past two decades, East Asia has become a highly dynamic marketplace where commodities flow rapidly across national boundaries. At the same time, there have been major changes in the organization of cultural commodity production and consumption due to an increase in the utilization of alternative distribution channels brought about by information technology and social media, and resulting in a need for companies to revise their marketing strategies to accommodate these changes. Technological changes have enabled many consumers to access cultural content through various media forms, for example, by viewing television content online and not only via the conventional television set. The Internet, in particular, has provided a new marketing avenue for content, which in turn has weakened the control of the creative industry over its marketing. These Internet-based technologies and behaviors present a new venue for swiftly delivering media culture across national boundaries, which is often beyond the reach of state control (Otmazgin, 2016).

As countries in Asia rapidly modernize and become more affluent, government policies in many Asian nations have started to focus on transforming their cities into cultural and creative powerhouses. It is regarded as an attempt to bolter a national or cultural identity against the perceived forces of western cultural imperialism or as another potential route to further economic growth. One thing to bear in mind is that cultural policy operates differently within Asia due to a few key issues. Firstly, the widespread colonization within the region and the subsequent struggles for independence has left many Asian nations entrenched in political and cultural legacies. Secondly, there is a notion, predicated on the success of the so-called Asian Tiger economies, that Asia possesses a distinctive set of Asian values which heavily influence its government policies and finally, the different systems of government that exist within Asia itself often lead to key differences in how government policies are formulated and implemented. Yet, the uncritical incorporation into current policy initiatives in many countries in Asia of these policies from the UK and the US sometimes fail to take into account these differences (Lorraine Lim, 2014).

GLOBAL BUSINESS OUTLOOK –SUBSECTORS

Functional Creations

By 2050, there will be two billion additional city dwellers and sustainable urbanisation will be a major construction challenge, therefore the industry must strive to find innovative new products and solutions, to contribute to building better cities. The world construction markets are at a tipping point, with 52% of all construction activity in emerging markets today, which is expected to increase to 63% by 2025 (Hook 2013). The increase in real GDP in architecture, urban and interior design was expected to grow 2.6 % in 2015, up from a projected 2.1 percent in 2014 (GE Capital report 2015).

Social and cultural evolutions and technological revolutions have helped fuel the thirst and demand for creative products, new forms of entertainment, distraction, and inspiration. While the sector shows high business birth rates, the business failure rate is equally high. The functional creations sector's economic and business growth globally (and in Malaysia specifically) is highly dependent on a robust industry's economic footprint through its supply chain relationships with other sectors, generating output and employment in those sectors and increasing earnings in the wider economy. Apart from this, the care and preservation of local aesthetic is equally important and by employing STI, new techniques and style could be created without tarnishing its traditional values and allows for user friendliness and practicality of such technology. This integration of the creative industries into the economic rationale of nations is particularly challenging in the context of mixed economies, as the role of creativity as a driver of growth is often underestimated or ignored (M Makeka, H. Rupert Dave Duarte 2015).

The architecture, interior design and generally the built environment industry sectors are relatively fragmented, with a few dominant players in most sectors, whether by industry or country serving niche markets. The demand for new sustainable and economically viable design for a number of reasons, has significant economic implications for the architecture, interior design and urban design industries - by 2050 there'll be two billion additional city dwellers – and sustainable urbanisation will be a major construction challenge. The industry must strive to find innovative new products and solutions, to contribute to building better cities.

The fashion and jewellery industry is a vibrant $1.2 trillion global industry. It is a structurally diverse industry, ranging from major international retailers to wholesalers to large designs houses to one-person design shops (Carolyn Maloney, 2015). In Malaysia for instance

in 2013, the textiles and textile products industry was the ninth largest export earner with RM10.3 billion, contributing approximately 1.4 per cent to Malaysia's total exports of manufactured goods (MIDA, 2015). It employs people across occupations - fashion designers, computer programmers, lawyers, accountants, copywriters, social media directors, and project managers. The innovation and inspiration showcased within the past two decades have seen considerable changes within this industry. With the incorporation of science and technology (eg engineered textiles and 3D printed garments (Gould, 2014), these components of the functional creation sector have potential for robust economic growth and demand.

In graphic design, packaging and branding design, globalisation is a relatively recent phenomenon that affords marketing managers new opportunities (Roth 1995a) as well as threat (Duncan and Ramaprasad 1995) based upon the global consumer's culture. Products from emerging economies and demand for naturalistic designs in developed economies have driven recent growth. The Global Graphic Designers industry has slowly recovered from the global recession, which caused a decline in demand as cash-strapped businesses cut back nonessential spending (Global Graphic Designers Market Research Report 2014). Global graphic and advertising spending was expected to increase by 4.9% in 2015 and would total $545 billion, according to recent projections from Zenith-Optimedia, based on an anticipated rise in overall global GDP in 2015. Rapidly growing countries (China, India, Indonesia, Malaysia, Pakistan, Philippines, Taiwan, Thailand, and Vietnam) registered a 10.1% jump in advertising spend in 2014. Similar growth of between 10% and 11% a year was forecast for 2015 through 2017. (Ayaz Nanji, 2015).

Media

The media and entertainment sector is in a rare moment where existing business models continue to thrive at the same time that new models are emerging. The traditional model still dominates, but movement to an online "over the top" (OTT) model is hastening. The acceleration is being driven by the rapidly growing amount of content available via the Internet and the proliferation of devices, such as tablets and smart-phones, offering high quality viewing experiences. The growth reflects the public's mounting appetite for content, especially video, anywhere, anytime and on any device. The world of consumers, particularly younger generations, sitting in their living rooms to watch television shows at programmed times is quickly giving way to a market of viewers using multiple devices inside and outside the home to consume content, and at the time and sequence they choose to watch.

The changing dynamic poses challenges but also offers lucrative opportunities. On the challenge side of the equation, pay TV subscription and advertising models do not translate directly into the new online reality, and have less of a hold on younger generations. Millennials, for example, have grown up less dependent on paid television and are less likely than other demographic groups to subscribe to TV when they move out and establish their own households.

This provides a major opportunity for entertainment content companies. The Internet channel offers the possibility for these companies to connect with and market directly to consumers. Although cable distributors will continue to play the major role in the foreseeable future, initial moves by content companies to offer individual channels and packages online represents incredible potential, especially with Millennials.

The international market place is ablaze with opportunities to sell digital games across multiple platforms, including digital console, digital PC, mobile and online games, whereas physical PC games are in decline worldwide. Some markets are seeing massive increases in digital console games sector. As with the publishing industry, some consumers still prefer to hold a physical copy in their hands, although most industry experts foresee that digital download is poised to overtake physical in the very near future. Consumers, especially Millennials, or `digital natives' (age 14- 30), are strongly influencing M & E industry trends worldwide. According to Deloitte (2015), more than 90% of Millennials are typically engaged in four different activities when in front of the television. These consumers expect to access video content 24/7 and are less dependent on TV subscriptions, and when watching a TV show, are typically also simultaneously on social media, sending text messages, listening to music or playing video games. This is affecting the attention span of consumers, and spurring desire for tablets, smart phones and technology with easy and swift interfaces.

Global film entertainment revenues will surpass USD100 billion in 2017 to reach USD118 billion by 2018 at a 4.5% growth rate. Box offices will grow 4.9% in the years leading up to 2018 while physical home video (for example DVD and blue ray rentals and sales) will decline 4.8%, while digital home video (for example OTT), streaming and video on demand will grow 19%, surpassing physical in 2018. By the end of 2015 the world's movie theatres will have fully converted to digital screens, marking the end of 35mm film distribution. Combined with the upwards trending of OTT and streaming services which are expected to grow 28.1% globally during five year period, broadcast television and filmed

entertainment have been transformed into a digital sector led by HBO, Hulu, and Netflix and many new entrants to the marketplace. In addition, pay TV, VoD and IPTV are popular in many markets, and consumers have an array of sources to view content on devices to download or stream content for viewing (US Department of Commerce, 2015).

Globally, consumers no longer care about the divide between digital and traditional media. What they want is more flexibility, freedom and convenience and when and how they consume their preferred content.

The Global Entertainment and Media Outlook reveals that total worldwide entertainment and media revenues will rise at a compound annual growth rate (CAGR) of 5.1% over the coming five years, from US$1.74trn in 2014 to US$2.23trn in 2019. While the pace of industry growth will vary widely in different markets -- with Japan seeing the slowest growth at a CAGR of 0.9%, and Nigeria the fastest at 15.1% -- it's apparent that when consumers around the world become connected their behaviour becomes more similar, subject to two differentiators. The first is the quality of the available infrastructure for consuming content. The second is consumers' common desire for content experiences that are relevant to them personally. This is why, even in a globalised world, meeting local preferences remains critical.

There are 10 key cross-segment global highlights summarised from the findings of research done by PricewaterhouseCoopers (2015): Mobile monetisation is the next critical challenge; TV and video consumption patterns are changing; Measurement is getting better, but understanding how media is consumed will remain a significant challenge; Connected devices open up new video opportunities and challenges; OTT services are familiarising users in some markets with a video consumption experience free from advertising; The rise of OTT video services is slowly changing the shape of advertising; Social/casual gaming revenue will exceed traditional gaming revenue in nine markets by 2019; Electronic consumer books revenue will see strongest growth in countries with high tablet penetration; Major cities will be the most lucrative markets for DOOH advertising; and the notion of the public licence fee is under unprecedented pressure (PWC, 2015).

The next part of the report describes the current global trend for Audio Visual: Film, Television, Radio and others; Publishing: Books, Magazine and Newspaper; and New Media: games, software and digitize creative content (animation, CG, mobile content and etc.)

Film and Entertainment (Music, TV and Radio)

According to the Ofcom report, television revenues continued to grow at the fastest rate among the communications industries, rising by 3.1% in 2013 to USD396bn (Ofcom, 2014). Subscription revenues continue to be the key driver of this growth, rising by 4.4% to reach USD198bn. Advertising and license fee revenues grew at a more modest 1.9% and 1.6% respectively in 2013. Meanwhile, worldwide radio revenues stood at USD44bn in 2013. Worldwide radio revenue rose by 2.7% in 2013 to reach USD44bn. This is the fourth consecutive year of growth.

i) Film

According to the Ofcom report, global total film entertainment revenue will rise at a 4.1% CAGR to 2019, reaching US$104bn. Particularly strong growth will be seen in China (14.5% CAGR) and in Latin America, thanks to a 6.1% CAGR in Brazil and 11.5% CAGR in Argentina, but even global leader the US, with 33.0% of the total market in 2014, will see above-average growth of 4.6% CAGR. Connected devices open up new video opportunities--and challenges. Smartphone connections are forecast to rise from 1.92bn in 2014 to 3.85bn in 2019. The proliferation of such connected devices among consumers will create both significant new opportunities and considerable challenges for companies creating and distributing filmed entertainment content.

ii) Music

The growth rates of recorded and live music continue to diverge. Falls in global total recorded music revenue will continue to 2019, albeit at a slowing pace. By comparison, global total live music revenue will rise at a rate that will just about compensate for recorded music losses, boosting total music revenue to a 0.8% CAGR over the forecast period. Digital recorded music revenue will overtake physical in 2015.

iii) Radio

Advertising will drive growth in radio revenue. The continued recovery of advertiser confidence since the economic downturn will see radio advertising revenue extend its share of global total radio revenue from 75.3% in 2014 to 75.8% in 2019. Connected devices emerge as a mixed blessing. By 2019, smartphone connections will have risen to 3.85bn, from 1.92bn in 2014, accounting for 56.0% of all mobile phone connections.

vi) TV Advertising

While global online TV advertising is seeing a near 20% CAGR, global total TV advertising revenue has slowed. Global total TV advertising revenue will rise at a 4.1% CAGR to US$204.07bn in 2019. Global multichannel and terrestrial advertising revenue will increase at 5.1% CAGR and 2.8% CAGR, respectively, although global online TV advertising revenue will see 19.8% CAGR growth. Global total TV advertising revenue's share of global total advertising revenue will fall from 31.5% in 2014 to 30.6% in 2019.

Publishing: Books, Magazines and Newspaper

i) Book Publishing

Efforts by such giant online conglomerates such as Amazon.com to produce electronic books- e.g. the Kindle, Nook – have proved a failure as customers have returned, through their very own site, to the printed book, resulting in a peak in sales of the traditional book over recent years.

Global books revenue will rise by US$8bn over the forecast period and is set to rise at a 1.3% CAGR to US$128.34bn in 2019, from US$120.13bn in 2014. Growth will be driven by India, which became the tenth-largest book market in 2014 and will see the fastest growth globally in total books revenue. Electronic consumer books revenue will see strongest growth

in countries with high tablet penetration such as the US, the UK, Singapore and South Korea, which will be among the first markets to see e-books' share of consumer book revenue exceed 40%.

ii) Magazine Publishing

Total magazine revenue will remain on an upward curve to 2019. Driven by a 1.5% CAGR growth in trade magazine revenue, global total magazine revenue will reach US$97bn in 2019, up from US$95bn in 2014, but growth will be no higher than 0.55% in any year of the forecast period.

iii) Newspaper Publishing

Total newspaper revenue will decline over each of the next five years, albeit at lower rates. But circulation print is set for growth with the average daily unit circulation print forecast to rise at a 1.0% CAGR over the forecast period, from 552mn in 2014 to 580mn in 2019. Mobile monetisation is the next critical challenge. By 2017, more than half of the world's population will be mobile Internet subscribers. While markets such as Turkey and Indonesia that comprise the global industry's bedrock remain comprehensively led by print for now, mobile take-up threatens the same digital disruption faced in markets like the UK.

New Media: games, software and digital creative content

Global video games revenue will grow healthily through to 2019. After recovering from slower growth driven by the end of the previous games console cycle, total global video games revenue will rise at a CAGR of 5.7% over the forecast period to reach US$93.18bn by 2019.

The shift to digital is well under way, but physical access persists. By 2019, global digital distribution of traditional games will generate revenue of US$12.89bn, or 19.6% of traditional gaming revenue. But in the console market in particular, the ability to trade in physical games, frequently higher digital pricing and a lack of network infrastructure will keep physical distribution relevant.

Social/casual gaming revenue will exceed traditional gaming revenue in nine markets by 2019. While markets with long-established traditional console and PC game offerings continue to be dominated by this type of revenue, globally the growth of social/casual gaming revenue will create a US$22.52bn market by 2019. The single biggest shift in total video games revenue will come as countries such as India and South Africa see social/casual gaming revenue overtake traditional gaming revenue by 2019.

Cloud gaming will become an increasingly viable proposition. The next five years will see vast increases in device connectivity, with global smartphone connections forecast to nearly double to 3.85bn by 2019, by which point there will be more than 1bn extra tablet active devices. This connectivity means that, as with video and music streaming services, cloud streaming gaming services can begin delivering on their potential, but two things are needed: the right pricing model to both drive adoption and generate sufficient returns for

platforms and publishers; and continuing investment in broadband and mobile Internet infrastructures to support the required response times for interactivity.

CHAPTER 2 IMPACT OF DISRUPTIVE TECHNOLOGIES

INTRODUCTION

Technology is the backbone of the digital economy. The rate of change and the level of disruption driven by modern technology are exponential. Advancements in computer processing power, data storage, and chip design; the ubiquity of bandwidth; enterprise mobility; and many other developments that have unfolded in recent years are enabling myriad opportunities that were once impossible, both technologically and economically.

Now, a tipping point has been reached where cognitive computing, big data analytics, cloud computing, and the rapidly growing Internet of Things (IoT) are transforming businesses, and in turn the Creative Industry, around the globe—including those outside the technology sector. Promising advancements in materials, software, fabrication techniques and machine design are likely to lead to an expansion in enterprise applications for additive manufacturing (3D printing).

Meanwhile, enterprises are making plans for the next economy rising from today's disruptive and unprecedented change. Technology businesses are beginning to think more strategically about adapting their business models and operations, and creating new revenue opportunities. Companies across the entire IT services landscape are changing how they deliver their offerings, shifting toward more flexible consumption business models that allow customers the flexibility to consume and pay for products and services based on need and usage. Technology companies considering this path—which can create real value for businesses and customers—need to think strategically about how flexible consumption can drive future growth. Before evolving their business models, technology companies also must be prepared to manage near-term transition costs, which could be significant, and ensure that there is alignment and integration of key decisions (Deloitte, 2016).

In the Creative Industries, monetisation in the digital era continues to be very challenging, even for the best-known artist, and it is all about scale. Touring and synch licensing, such as licensing music to film, advertising, airline entertainment services and etc., along with diversification and added merchandise provide a basket of opportunities for the industry. There is currently a major debate in the industry about how the technology versus creative and music sectors are engaging and supporting the music industry. Consumers are demanding an experience and wish to interact and connect with content and creators. Services

are always on, which required technical agility from companies in this field (US Department of Commerce, 2015).

The last half-century has seen major waves of technology that have defined the global creative industry and the creative economy. Technological advancements are driving and fuelling global “mega-trends”, with significant benefits and implications for this burgeoning industry.

IMPACT OF DISRUPTIVE TECHNOLOGIES ON SUBSECTORS

Functional Creations

New technologies are catering to global demand for better built-environment design (smarter building, zero emission townships, etc.) and all-inclusive wearable technologies (fashion and accessories for defence, mobility and enhanced lifestyle). Automated technology and discovery of new fabric, design or style have become fast-paced. Digital textile printing, creation of synthetic fibers, development of "Formotion" clothing technology, improvement in safety clothing such as sweat-wicking or fire retardant garments, and creation of "super suits", like that of NASA's Aero-gel, are some examples. These examples are slowly shaping-up a fashion industry that centres on innovative design and fast turnaround and visual communications (interactivity of graphic and advertising design).

Disruptive design for the development and consumption of technology in functional creations has resulted in rapid innovation and decreased time-to-value. But patents have been impediments to speeding up innovation in complex technological innovation which are necessary to facilitate innovation of simple technologies, which are more easily replicable (Kash 2015).

Science and technology advancements have created a world in which interdependence has become a reality. These advancements, especially within the functional creation sector (Fig 2.1), is at an exciting juncture – hologram, 3D printing, renewable sources, incredibly complex built environment, fashion, jewellery, graphic design and techniques are making head-spinning miracles and breakthroughs on a global-conscious movement – a juxtapose

balance between expanding shifts of needs and interests and the changing concerns and problem that also illustrate a shift in emphases and the needs of society.

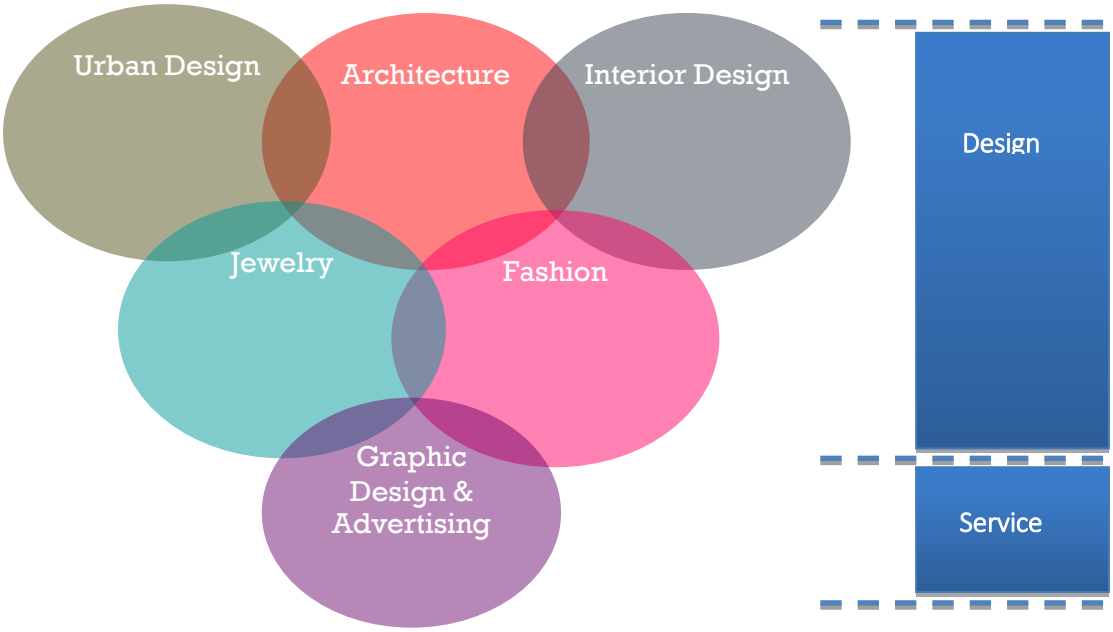

Figure 2.1 Functional Creations based on UNCTAD definition

Architecture, interior design and urban design have advanced to include a quick and sustainable use of design, materials and building techniques directly influenced by advancement of science and technology – enabling the communicating of a sustainable and reputable usage of design in today's ever challenging and demanding condition. Jewellery and fashion design has crossed over into other sectors that embed and utilise science and technology into wearable technologies, to increase productivity and enhance future lifestyles and needs. Meanwhile graphic advertising and branding produce content and use media technology that enrich believability in delivering specific intended messages. The functional creations via science and technology allow for problems to be processed holistically, enabling the possession of skills that include creativity, empathy and the ability to make ideas visual and accessible. Smart materials, high-tech performance devices and energy-saving products in the last half century have seen major waves of technology that have defined the global creative industry and the creative economy. In Southeast Asia, they impact the Functional Creations subset in two main ways. Firstly, they facilitate the *evolution* of design (used future) and secondly they allow the *revolution* of design (innovative design). The confluence of technological advancement in many emerging Southeast Asian countries is a driver and important factor in fuelling global "mega-trends", especially within Functional Creations with significant societal benefits and implications.

A massive explosion in the number of smart/disruptive technologies and tools has created a huge amount of demand catering to global needs for bespoke design. This puts a demand on the elements of the sector's focus areas, such as infrastructure and the environment, for better built-environment design (smarter building, zero emission township, etc.), all inclusive wearable technologies (fashion and accessories for defence, mobility and enhanced lifestyle) (Table 2.1).

Table 2.1 Disruptive Technologies affecting the Functional Creations subsector

Focus Areas	Mobile Internet	Automation of Knowledge Work	The Internet of Things (IoT)	Cloud Technology	Advanced Robotics	Autonomous Vehicles	Energy Storage	3D and 4D Printing	Advanced Materials	Renewable Energy
T1	-	/	/	-	/	/	/	/	/	/
T2	-	/	/	-	/	-	/	/	/	/
T3	/	/	/	-	/	/	/	/	/	/
T4	-	/	/	-	-	-	-	/	/	-
T5	-	/	/	-	-	-	-	/	/	-
T6	/	/	/	/	-	-	-	/	-	-

Legend

T1	**T2**	**T3**	**T4**	**T5**	**T6**
Architecture	Interior Design	Urban Design	Fashion Design	Jewellery Design	Graphic & Advertising

As production in general becomes more automated, designing and discovery of new fabric, design or style is also becoming more fast-paced. Digital textile printing, creation of synthetic fibers, development of bespoke clothing technology, and improvement in safety clothing help create "super suits" like those of NASA's Aero-gel. These and a lot more are slowly shaping-up a fashion industry that centres on innovative design and fast turnaround and finally the use of STI allowing for a believable visual communications (interactivity of graphic and advertising design). These exponential growths have created inclusive, decisive and innovative tools, techniques and productions of consumable and sustainable design. Yet concerns arise with the readiness of governance and policies in regulating these growths to ensure sustained development.

McKinsey predicts that knowledge work automation will be the most significant disruptive technology to influence the world by 2025 (Rainbird Whitepaper, 2015). Globally, the automation of everything has been the game changer and influences the development and advancement in the Functional Creation sub-sector which is also synonymous with creative innovation. Creative economy and industry sectors, like graphic design and advertising, the built environment, jewellery and fashion, can benefit immensely from the advancement of 3D/4D printing, advanced material and techniques permits for over the top design, and design that calls for current situations and needs and more. Through the dynamic insertion of these technologies, the Functional Creations sub-sector could be one of the biggest life changing contributors in terms of revenue and resource commitment, enabling the exploitation of a range of new technologies in order to lower costs, raise quality standards and, in some cases, bring new products and construction techniques into the market.

The last disruptive innovation in architecture and building industry happened in 1883 when Warren Johnson invented the thermostat, helping to launch the entire building control industry (Theodora Zavera, 2015). Architecture, for example, must innovate in order to grow and maintain relevance and currency in the wake of technological, cultural, and environmental change. Innovations from disruptive technologies push the boundaries of building, resulting in unanticipated forms and material applications (Blaine Brownell, 2015). Disruptive technology has allowed for buildings to be constructed with near impossible speed and near impossible conditions in locations that could transform the way buildings are made, while constantly allowing for the investigation of different materials and fabrication methods. 3D printing turns things previously thought to be impossible into reality

The concept of disruptive innovation has become a hot topic in the interior design industry which is one of the least efficient industries. So much of production and manufacturing of interior work has become rigidly process-oriented and quality controlled, prototyped and tested - almost every interior build is still a one-off design, constructed piece by piece on site. Present disruptive technologies, like prefabrication and robots, are seen as possible saviours of the industry, which would increase efficiencies. Parts that are prefabricated or assembled on site by robots increases construction efficiencies. Apart from this, the disruptive innovation in design and construction can also come from algorithms rather than just robots, through the form of software like Google Flux which automates the building design based upon site conditions (Ceilidh Higgins, 2015).

In urban design the advancement in automation and renewable energy help in the construction of a city's infrastructure and potentially lead to higher efficiency and eco-friendliness. With predictions that 66% of the world's population will live in urban areas by 2050, disruptive technology like the internet of things is increasingly drawing the attention of city planners, engineers and architects keen on staying ahead of the curve - imagining a world with smart street lamps, smart sidewalks and even smart sewage systems (Stephanie Walden, 2015). The possibilities for the employment of disruptive technology in an urban environment are nearly limitless. Around the world, cities frequently touted as "smart" took advantage of disruptive technology to introduce many world's firsts: synchronised traffic lights to reduce congestion; and New York City is working on America's first "quantified community," which will monitor data like foot traffic, waste production and energy usage in real-time (Stephanie Walden, 2015).

Fashion and jewellery designers are increasingly savvy users of technology, especially for creating engaging customer experiences. In fashion and jewellery design, the employment of disruptive technology have seen the biggest boom since the Bahaus era, where fashion and jewellery material and techniques first evolve - from custom design accessory for the rich to the mass production for the masses. Today fashion and jewellery designs encroach into wearable tech, making break-throughs in tangible ways that are just beginning to resonate with popular culture. It comes in many forms of accessory technology that serve as miniature extensions of computers and smart phones. These are the top apparel people actually want to wear which marries function with fashion as stylish activity tracker that also doubles as jewellery and transmits data to the smart devices via bluetooth connectivity and this is just the tip of the iceberg. 3D printing and software tools provide tech-savvy designers the flexibility to run wild with creativity when it comes to colours, patterns, and daring new perspectives. Plus, retailers are also able to use technology to collect data metrics and interact and observe shoppers on social channels as a means of reading public sentiment and identifying emerging trends (Brian Spears, 2014). Limitless possibilities resonate throughout this industry - clothing fitted with solar panels that charge your mobile devices, smart fabrics that optimise wearer comfort by adjusting colour or texture based on environment or apparel that purifies the air, omits fragrances, or transforms appearance in reaction to mood or sound.

Graphic design and advertising have always been a disruptive medium that use a lot of disruptive technologies and is the epicentre of evolution -

often breaking conventions and category rules through unusual approaches to graphics and design values, really connecting with today's consumer. According to Dan Padgett and Micheal S Mulvey (2007), introducing a disruptive technology into an existing service market provides new opportunities for firms and customers, often altering the nature of the market. A presence on multiple graphic and advertising platforms is now considered essential for businesses. Disruptive technologies have changed the way graphic design and advertising is being conducted. It is more specific and, as if by magic, knew what the potential customer needed, changing the behaviour of disseminating and receiving information. This is enabled by an explosion of technology, experimentation, and measurement, resulting in improved results for buyers and yield for sellers. Online advertising is where technology and creativity are united by developing content that is targeted, compelling and entertaining. This is a challenge widely tackled by creative designers, linguistic copywriters and localisation web developers all over the world, in every language (Louis Law, 2016).

Media

Technological convergence and the digitization of news, information and entertainment led the OECD and others to identify content as a new growth industry in the 1990s. While some of the enthusiasm waned with the bursting of the dot.com bubble, with the precipitous fall on the high-technology NASDAQ in 2001 cofounding the `Content is King' mantra of the 1990s, the renewed focus on developing digital content had a number of lasting legacies on media and cultural policy. One of the challenges presented by the digital content industry to the established media is the major players' quick rise and fall, with considerably fewer degrees of state subvention than incumbents have in the print, broadcast and telecommunication industries. The likelihood of clashes between traditional media industry and cultural policy goals and other goals, such as the promotion of competition, innovation and new digital product and services, will be an ongoing source of policy tensions as strategies to develop digital content industries are further developed (Flew T., 2012).

However, the foundations of the creative multimedia industry still connect strongly with the cultural elements of each country. The system that generates creativity is culture and not technology or the economy directly, and not individuals by themselves. However, it is the economy and high-tech sectors that the term creativity has attracted most policy and critical attention over recent years. This is because creativity has become associated with innovation

in the business environment. Thus creative innovation is much sought after quality that is said to drive contemporary post- industrial economic performance as a whole. At the same time, creativity is also the stock in trade of the humanities and the creative arts, which are strange bedfellows for economics and technology (Hartley,J *et al*, 2015).

The industry's transformation will demand new business models that have yet to fully emerge. Mobile advertising, for example, is still evolving. But the prospect of combining viewing habits with social media, location-based services, and other technologies is opening new vistas for media targeting. Advertising messages in the online world will have the opportunity to be as individualized as the advertiser wants them to be (Deloitte, 2015).

The Media sub-sector is currently undergoing rapid changes corresponding to the changes in technology landscape. Creative industry around the world must take steps to stay afloat of the changes of the technology and innovation in the usage of creative content and applications. The convergence will also drive an escalating battle for control of customer relationships. Device manufacturers, telecommunication companies, media distributers, content providers, and even app developers are seeking direct relationships with customers (Deloitte, 2015).

The next big thing, however, may well arise from the merging of the technology, media and telecommunication industries and the hyper connectivity inherent in the "Internet of Things." The borders of these industries is steadily blurring as each is increasingly able to generate and analyze eye-opening amounts of individual consumer data. Media viewing habits may become only a small part of the data set that advertisers use (Deloitte, 2015).

Referring to Table 2.2, the three main Media focus areas are impacted by the 10 most disruptive technologies. New Media, Publishing and Audio Visual sub-sectors are impacted and connected to these 10 disruptive technologies. The most connected technologies for this time are Mobile Internet, Automated of Knowledge Work, IoT, and 3D and 4D Printing.

Table 2.2 Disruptive Technologies affecting the Media subsector

Focus Areas	Mobile Internet	Automation of Knowledge Work	The Internet of Things (IoT)	Cloud Tech.	Advanced Robotics	Auto-nomous Vehicles	Energy Storage	3D and 4D Printing	Advanced Materials	Renewable Energy
T1	/	/	/	/	/	/	/	/	/	/
T2	/	/	/	/	/	/	/	/	/	/
T3	/	/	/	/	/	/	/	/	/	/

Legend
New Media (T1)
Publishing (T2)
Audio Visual (T3)

i) Internet Access

Globally, the divide between consumer spending on Internet access and other media will widen (PWC 2015). Total Internet access revenue is set to continue its strong growth at an 8.8% CAGR from US$449.45bn in 2014 to US$686.26bn in 2019, far ahead of any other consumer revenue, as more consumers adopt the Internet as a way to access digital versions of new and existing media services for "free" or low prices.By 2019, mobile Internet access revenue will account for more than 75% of the market in five territories.Mobile Internet access revenue will soar at a 12.7% CAGR, from US$236.83bn in 2014 to US$441.47bn in 2019, accounting for close to two out of every three dollars spent on Internet access in that year. In 2019, Indonesia, Peru, Rest of MENA, Kenya and South Africa will see more than 75% of total Internet access revenue derived from mobile, with South Africa at an industry-leading 90.7%. Smartphone connections will double to account for over half of all mobile phone connections in 2019. As smartphones become cheaper, the number of smartphone connections will increase at a CAGR of 14.9%, from 1.92bn in 2014 to 3.85bn in 2019, equal to 56.0% of all mobile phone connections, with these additional users driving growth (PWC 2015).

ii) OTT Video

The rise of broadband penetration has been successfully exploited by a new style provider that delivers premium video services over-the-top (OTT) of the Internet rather than via broadcast channels. Hand-in-hand with the growth of online TV is the related issue of cord-cutting and `cord-shaving' whereby traditional pay-TV subscriptions are either cancelled or downgraded and supplemented by OTT video services such as Netflix that bypass traditional broadcast technology to deliver video content over the internet.

However, OTT does not impact significantly on other content such as sports, news and other live content, compared to movies and scripted TV. A widespread move in the direction of OTT retains the potential to significantly change content packages and the make-up of TV subscription revenue. The mindset of OTT as a threat to traditional TV is also evolving. The concept of collaboration is now much more actively under consideration. There is a trend driving the industry towards new programming bundles and pricing strategies in the long term. Traditional subscription TV operators have been innovative in response to the potential threat of OTT by developing their own multiscreen services that allow consumers to access and watch content on a range of devices. Such innovations increase the appeal of the most popular content, such as premium sports, news and other live events.

iii) Wearables and Content

The overall consensus among tech analysts is that the wearables industry is still in its infancy and will evolve into something completely different in the next few years as devices become smaller and less obtrusive, and do far more than so far imagined.

Overall, the wearables market is expected to skyrocket. A Transparency Market Research report estimated that the global wearable technology market stood at $750 million in 2012 and expected it to reach $5.8 billion in 2018. Others consider that estimate conservative. Last year, Juniper Research predicted that worldwide spending on wearable technology would reach $1.4 billion in 2013, rising to $19 billion by 2018.

But which bits of today's wearables market will survive long-term, and which will change? Analysts and industry experts have strong opinions on the subject, the issues include visibility, market consolidation, fashion, and optimal form factor. There will be massive growth in wearables and many form factors will evolve. It will be a battle between over-the-ear or over-the-eye or over-the-wrist. It is forecast that wearables that provide a biometric

interface to the user's medical providers as the most likely device to succeed long term. Analysts predict that the healthcare and medical industries will be a major user of future wearables.

Market consolidation is inevitable, as often happens in a new industry. The space is dominated by small players right now but once Apple and Google get into the space, particularly with Android Wear, they will have the capabilities to bring the technology to the next level (Teena Hammond 2014)

Some of the well-recognised technologies, such as Google Glass, the Sony SmartWatch and Nike's FuelBand, to lesser-known iterations such as the Qualcomm Toq smartwatch and Nichole Scherzinger's Twitter dress - displaying fans' twitter messages in real-time – will make wearable technology big business and affect the media industry. In the past few years media have become adept at creating content in short-form. Twitter, Facebook and video have taught us how to engage quickly and effectively with audiences and this is how content will best work through wearable media.

The optimum content will be one where one can receive short bursts of information and bookmark it for later. Wearable media will have an advantage if it can allow the user to return to fuller content later on. The device which enables the user to engage an audience provides great content opportunities. Even if those devices are not originally created for content, such as gaming devices or Nike's FuelBand, there is great value in the fact consumers have chosen to have them and are actively using them (Digital Innovator's Summit 2013).

Heritage

The first principal revolution in the field of archaeology was the introduction of DNA testing to determine aspects of authenticity of archaeological sites and findings. Since that time, advancements in technology have greatly come to define the future of aspects of Heritage, including in the realms of presentation, creating alternative forms of reconstruction as well as advancements in sound and visual documentation.

Presently, the introduction of Virtual Reality into the world of Heritage has opened up possibilities not only for an approach to aspects of preservation but helped create 'audiences' for a 'lived experience' of the process. An exhibition of Egyptian Mummies at the British

Museum combined not only a comprehensive display of Mummy figures, but an entire virtual reconstruction of the history of early Egypt as well as the process of treating and preserving Mummy figures.

Other new technological methods presently being tested and introduced includes holograms and robotics in the 'presentation of history and the natural world', hastening the veracity of information and findings and at the same time instruct on methods while creating a 'lived experience' for the broader public.

Technology, increasingly portable, movable and economical, has also 'democratized' preservation efforts and created opportunities for preservation activities to be conducted independently through individual efforts. UNESCO itself has created a "Heritage Toolkit" that allows for individuals to 'participate' in preservation and reconstruction efforts from individual homes.

Among the outcomes of such autonomy has been the devolution of the traditional sprawling museum/archive, and the increasing setting up of independent and focused smaller museums/galleries/spaces with sometimes highly eccentric and unorthodox exhibitions and displays.

Paradoxically, these advancements in technology have also induced an alternative movement that seeks to stem the "constructed" experience of technology by advancing a return to a more "authentic and lived" experience of Heritage. Such a trend is evident in the return of the Phonography in the Music Industry, presently posing a credible threat to the more electronically proficient listening experience of the CD (Compact Disc).

Heritage Science

A new development in the Heritage sector, which is particularly relevant to MS3.0, is the maturation of a new field called Heritage Science which involves the assimilation, adaptation and development of disruptive technologies in the Heritage subsector. The term has its roots in the recommendations of a UK House of Lords Select Committee report on Science and Heritage (2006) when the House of Lords Science and Technology Committee held an inquiry into Science and Heritage.

Heritage Science is seen as "key to the long-term sustainability of heritage: it is about managing change and risk and maximising social, cultural and economic benefit not just today, but in such a way that we can pass on to future generations that which we have inherited (House of Lords, 2006)". Domains of research, where heritage science makes a particular input were recognised to be galleries, libraries, archives and museums (GLAM); the built historic environment and archaeology.

Most importantly, from the MS3.0 perspective, Heritage science is based on an interdisciplinary fusion of knowledge from fundamental sciences (chemistry, physics, mathematics, biology) to arts and humanities (conservation, archaeology, philosophy, ethics, history, art history etc.) including economics, sociology, computer sciences and engineering. Heritage scientists in organizations support conservation (often called conservation science), access (e.g. development of new ICT tools), interpretation, including archaeometry and archaeological science (e.g. dating, provenancing, and attribution), heritage management (e.g. development of tools and knowledge supporting strategic or environmental management decisions) and wider societal engagement with heritage (e.g. heritage values and ethics). Heritage Science is also an excellent vehicle for public engagement with science as well as Heritage.

Impact of Disruptive Technologies

Disruptive technologies that have significant impacts on the Heritage subsector are the Mobile Internet,; Automation of Knowledge Work; Internet of Things (IoT); Internet of Systems (IoS); Cloud Technology; Advanced Robotics; Advanced Materials; and 3D/4D Printing (Table 2.3).

Table 2.3 Disruptive Technologies affecting the Heritage subsector

Focus Areas	**Mobile Internet**	**Auto-mated of Knowledge Work**	**The Internet of Things**	**Cloud Technology**	**Advanced Robotics**	**Auto-nomous Vehicles**	**Energy Storage**	**3D and 4D Printing**	**Advanced Materials**	**Renew-able Energy**
GLAM	/	/	/	/	/			/	/	/
Tra-ditional Arts and Crafts	/	/	/	/	/			/	/	/

The Arts

Much about the performing arts will not change in the future: talent, practice, knowledge, inspiration, and passion will still drive the performing arts. But, performing arts technologies have evolved in unprecedented ways. As a result, the current era of performing arts is unlike any that has come before, with remarkable new possibilities for enhancing excellence and exploring creativity.

In the future, the audience needs to see, hear, and feel a performance as fully as possible in a way it is rich, emotional, and unforgettable and modern technologies are the tools to achieve this.

Music making, live music performance, theatrical productions, and dance will be profoundly affected by new technologies such as laser, hologram, wearables, sound and music control, sensors, lights, cameras, video projections and digital fabrication tools (Table 2.4).

Table 2.4 Disruptive Technologies affecting the Arts subsector

Focus Areas	Mobile Internet	Auto-mated of Knowledge Work	The Internet of Things	Cloud Technology	Advanced Robotics	Auto-nomous Vehicles	Energy Storage	3D and 4D Printing	Advanced Materials	Renew-able Energy
Perfor-ming Arts	/	/	/	/	/			/	/	/
Visual Arts	/	/	/	/	/			/	/	/

CHAPTER 3 NATIONAL TECHNOLOGY AND INDUSTRY BUSINESS OUTLOOK IN 2050

ANALYSIS ON REVENUES

The Department of Statistics Malaysia (DOSM) keeps relevant data covering almost all aspects of the industry. The latest Economic Census of Arts, Entertainment and Recreation Services which was conducted in 2011 for reference year 2010 by DOSM was used as the base year in this report.

The DOSM and their Malaysia Standard Industrial Classification (MSIC) 2008 Ver. 1.0 was used as a standard classification of Creative Industry for the purpose of presenting of statistics according to activities listed in Table 3.1. Creative occupations for Creative Industry are adopted from Malaysia Standard Classification of Occupations 2008 (MASCO-08) as developed by the Ministry of Human Resources Malaysia (MoHR) as listed in Table 3.2. It serves as a benchmark to reflect occupational structure and employment in the Creative Industry.

Table 3.1: List of MSIC 2008 codes according to UNCTAD 2010 definition

UNCTAD 2010		**MSIC 2008 code**	
Creative Industry's focus areas	**Subsectors**	**Groups (3-digit)**	**Description**
MEDIA	Publishing	581	**5811**: Book publishing **5812**: Publishing of directories and mailing lists **5813**: Publishing of newspapers, journals and periodicals **5819:** Other publishing activities
		582	**5820:** Publishing of ready-made (non-customized) software
		749	**7490:** Other professional, scientific and technical activities n.e.c.

	Audiovisual	591	**5911:** Motion picture, video and television programme production activities **5912:** Motion picture, video and television programme post-production activities **5913:** Motion picture, video and television programme distribution activities **5914:** Motion picture projection activities
		601	**6010:** Radio broadcasting
		602	**6020:** Television programming and broadcasting activities
		742	**7420:** Photographic activities
	New Media	620	**6201:** Computer programming activities **6202:** Computer consultancy and computer facilities management activities
ARTS	Music	592	**5920:** Sound recording and music publishing activities
	Performing Arts and Visual	854	**8542:** Cultural education
		900	**9000:** Creative, arts and entertainment activities

UNCTAD 2010		**MSIC 2008 code**	
Creative Industry's focus areas	**Subsectors**	**Groups (3-digit)**	**Description**
FUNCTIONAL CREATIONS	Design	741	**7410:** Specialized design activities
	Services	711	**7110:** Architectural and engineering activities and related technical consultancy
		731	**7310:** Advertising
HERITAGE	Archive, Museums and Libraries	910	**9101:** Library and archives activities **9102:** Museums activities and operation of historical sites and buildings

Source: Department of Statistics Malaysia (DOSM)

Table 3.2: List of MASCO 2008 codes according to UNCTAD 2010 definition

UNCTAD 2010		MASCO 2008	Description
Creative Industry's focus areas	**Subsectors**		
MEDIA	Publishing	264 Authors, Journalists and Linguists	
		2641	Authors and Related Writers
		2642	Journalists
		2643	Translators, Interpreters and Other Linguists
	Audiovisual	265 Creative and Performing Arts	
		2654	Film, Stage and Related Directors and Producers
		2655	Actors
		2656	Announcers on Radio, Television and Other Media
		343 Artistic, Cultural and Culinary Associate Professionals	
		3431	Photographers
		352 Telecommunications and Broadcasting Technicians	
		3521	Broadcasting and Audiovisual Technicians
		3522	Telecommunications Engineering Technicians
	New Media	251 Software and Applications Developers and Analysts	
		2511	Systems Analysts
		2512	Software Analysts
		2513	Web and Multimedia Developers
		2514	Aplication Programmers
		2519	Software and Applications Developers and Analysts Not Elsewhere Classified
		351 Information and Communications Technology Operations and User Support Technicians	
		3511	Information and Communications Technology Operations Technicians
		3512	Information and Communications Technology User Support Technicians
		3513	Computer Network and Systems Technicians
UNCTAD 2010		**MASCO 2008**	**Description**
Creative Industry's focus areas	**Subsectors**		
MEDIA	New Media	3514	Web Technicians
ARTS	Music	235 Music, Arts and Performing Arts Teachers	
		2351	Music Teachers
		265 Creative and Performing Arts	
		2652	Musicians, Singers and Composers
	Performing Arts and Visual	235 Music, Arts and Performing Arts Teachers	
		2352	Arts Teachers
		2353	Performing Arts Teachers
		265 Creative and Performing Arts	
		2651	Visual Artists

		2653	Dancers and Choreographers
		2657	Clowns, Magicians, Acrobats and Related Professionals
		2658	Animal Keepers and Trainers
		2659	Creative and Performing Artists Not Elsewhere Classified
FUNTIONAL CREATIONS	Design	216 Architects, Planners, Surveyors and Designers	
		2163	Product and Garment Designers
		2166	Graphic and Multimedia Designers
		343 Artistic, Cultural and Culinary Associate Professionals	
		3432	Interior Designers and Decorators
	Services	122 Sales, Marketing and Development Managers	
		1222	Advertising and Public Relations Managers
		216 Architects, Planners, Surveyors and Designers	
		2161	Building architects
		2162	Landscape architects
		2164	Town and Traffic Planners
		2165	Cartographers and Surveyors
		243 Sales, Marketing and Public Relations Professionals	
		2341	Advertising and Marketing Professionals
		2342	Public Relations Professionals
HERITAGE	Archive, Museums and Libraries	143 Other Services Managers	
		1431	Sports, Recreation and Cultural Centre Managers
		262 Librarians, Archivists and Curators	
		2621	Archivists and Curators
		2622	Librarians and Related Information Professionals
		343 Artistic, Cultural and Culinary Associate Professionals	
		3433	Gallery, Museum and Library Technicians

Source: Ministry of Human Resources Malaysia (MoHR)

Measuring the Creative Industry

It is necessary to clarify measurement terminology such as economic contribution, impact, size and mapping (studies). The term 'economic contribution' is a "quantification of economic dimension of creative industries and gross changes in their economic activity. Economic contribution is basically a static, descriptive concept which can be interpreted according to which particular variable is involved and measured" (UNESCO Institute for Statistics, 2012). Employment, Gross Value Added (GVA), Gross Domestic Product (GDP), value of trade and etc. are used to statistically demonstrate the economic contribution of the Creative Industry. The Department of Culture, Media and Sports (DCMS), UK, uses the term 'mapping' to provide an overview of the industries' economic value, especially in places where relatively little is known about them. It corresponds to "a whole series of analytic

methods for collecting and presenting information on the range and scope of the creative industries" (BOP Consulting, 2010).

Economic analysis is important to examine the possibility of cumulating the effects from a lower level of aggregation (e.g. the firm/organization level) to the overall economic efficiency of creative industry. It starts from the firm/organization level to the industry level, and then from the sector level to the total economy level. In order to measure the economic contribution of creative industry, a simple and basic measure, modular in design should be used, which can evolve into a complex model in the future that can be used for the ex-post and ex-ante/estimation evaluation of the developmental potential of creative industry.

In the UK, economic size and structural analysis are used to determine how much economic activity is associated with the Creative Industry. These methods use measures from the System of National Accounts (SNA) for estimating the direct contribution of creative industry in the generation of basic macroeconomic aggregates (GVA, GDP, gross value of production, employment, fixed capital formation, export and import) by sub-sector, and to track the gross changes in the economic activity of creative industry. Economic size analysis aggregates all components of an economic sector and focuses on economic effects for the long-term (Cultural Policy Centre, 2004).

In the UK, structural analysis consists of different analysing techniques for studying the structure of cultural industries, in the first line concerning the distribution of macroeconomic aggregates by sub-sectors, groups of stakeholders (authors, producers, distributors, etc.) or different stages of the value chain. This kind of approach can be adapted by Malaysia for measuring the long-term contribution of cultural industries to the economy. Meanwhile in the UK, short-term measurement is based on the evaluation of structural business measures (turnover, sales revenue, number of enterprises, profit, etc.) (UNESCO Institute for Statistics, 2012). In this report, the economic size and structural analysis has been done at the practical (micro and macro) level with data obtained from DOSM.

Nevertheless, in the future, we should also consider different aspects (production capacity, creative class, cultural amenities, etc.) of creative industry in measuring national developmental performances.

Key Findings

Creative Industry's employment

Table 3.3 shows the employment data taken from the Economic Census 2011 for reference year 2010 as conducted by DOSM and are produced using MSIC 2008 codes. In 2010, the Creative Industry generated 146,250 jobs and had 10,559 establishments; as compared to a national total of 6.96 million jobs and 663,000 establishments operate in Malaysia. This means that the Creative Industry accounted for 1 out of 48 jobs in Malaysia. As expected, media (publishing, audiovisual and new media) which was the largest focus area in Creative Industry was the highest with 77,601 jobs (53.1 per cent of the total number of employments in Creative Industry) followed by functional creations (design and services) with 61,547 (42.1 per cent). Surprisingly, functional creations; with only a few sub-sectors are almost at par with media. Architectural and engineering activities contributed more than 10,000 jobs in these sectors. On the other hand, functional creations have the highest number of establishments operated in 2010 with 6,422 (60.8 per cent) followed by media with 2,986 (28.3 per cent). Archives, museums and libraries are categorised under heritage have the lowest number of persons engaged and also number of establishments.

Table 3.3: Employment in the Creative Industry

Creative Industry's focus areas (UNCTAD 2010)	Number of establishments	Number of persons engaged
Media	2,986	77,601
Functional Creations	6,422	61,547
Arts	1,140	6,751
Heritage	11	351
Total	**10,559**	**146,250**

Source: Economic Census 2011 (reference year 2010), DOSM

Creative Industry's GVA

The Gross Value Added (GVA) of the Creative Industry is indexed at constant 2010 prices (shown in Table 3.4) and refers to the numbers which are directly attributable to the Creative Industry. Figure 3.1 shows the distribution of the Creative Industry's subsectors from 2011 to 2015 while Table 3.5 shows the percentage change of Creative industry's GVA based on previous year. Information and communication which was categorised under Media has the

highest value of GVA with RM 12 billion and accounted for 59.1 per cent of the GVA in the Creative Industry as a whole in 2011. GVA for this group continued to increase with an average of 7.0 per cent annually to RM 15.7 billion in 2015. Professional, scientific and technical activities (categorised under functional creations) generated RM 6.6billion in 2012 and accounted for 32.7 per cent of total GVA of the Creative Industry. GVA for this group had the largest increase among all, which sharply increased at 11.0 per cent average to RM 10.1 billion in 2015. On the other hand, arts, entertainment and recreation services, and education have grown steadily with an annual average increase of 6.8 per cent and 6.1, per cent respectively.

In 2011, the GVA of the Creative Industry was RM 20.3 billion and it increased by 8.2 per cent in 2012. Subsequently, the total GVA of Creative Industry increased by 8.6 per cent between 2012 and 2013, and by 8.5 per cent between 2013 and 2014. According to this, the CI is predicted to generate RM 138.5 billion by 2035 as shown in Table 3.6 and Figure 3.2. As a proportion of Malaysian GVA, the creative industry continues to rise from 2.37 per cent to 2.44 per cent in 2011 and 2012 respectively. In 2013, the industry accounted for 2.53 per cent, 2.59 per cent in 2014, and still increasing to 2.66 per cent in 2015. On average, creative industry's GVA is accounted for 2.52 per cent of the Malaysian GVA.

Table 3.4: Creative Industry's GVA at constant 2010 prices

Section	Division	Year					Remarks
		2011	2012	2013	2014	2015	
		Value (RM million)					
Information and communication		12,007	12,716	13,551	14,598	15,731	Media
	Publishing activities						
	Motion picture, video and television programme production, sound recording and music publishing activities						
	Programming and broadcasting activities						
	Computer programming, consultancy and related activities						
Professional, scientific and technical activities		6,647	7,486	8,445	9,308	10,068	Functional Creations
	Architectural and engineering activities; technical testing and analysis						
	Advertising and market research						
	Other professional, scientific and technical activities						
Education		1,294	1,391	1,470	1,552	1,638	Arts
	Cultural education						
Arts, entertainment and recreation services		365	389	412	444	475	Arts
	Creative, arts and entertainment activities						

	Libraries, archives, museums and other cultural activities						Heritage
Total GVA of Creative Industry		**20,313**	**21,982**	**23,878**	**25,902**	**27,912**	

Source: Department of Statistics Malaysia (DOSM)

Based on these data, it is predicted that in 2018, the GVA of the creative industry would stand at RM 35.6 billion and will account for 2.91 per cent of Malaysia's GVA (RM 1,223.3 billion). While in 2020, RM 41.8 billion would be generated and will account for 3.08 per cent of Malaysia's GVA (RM 1,354.5billion).

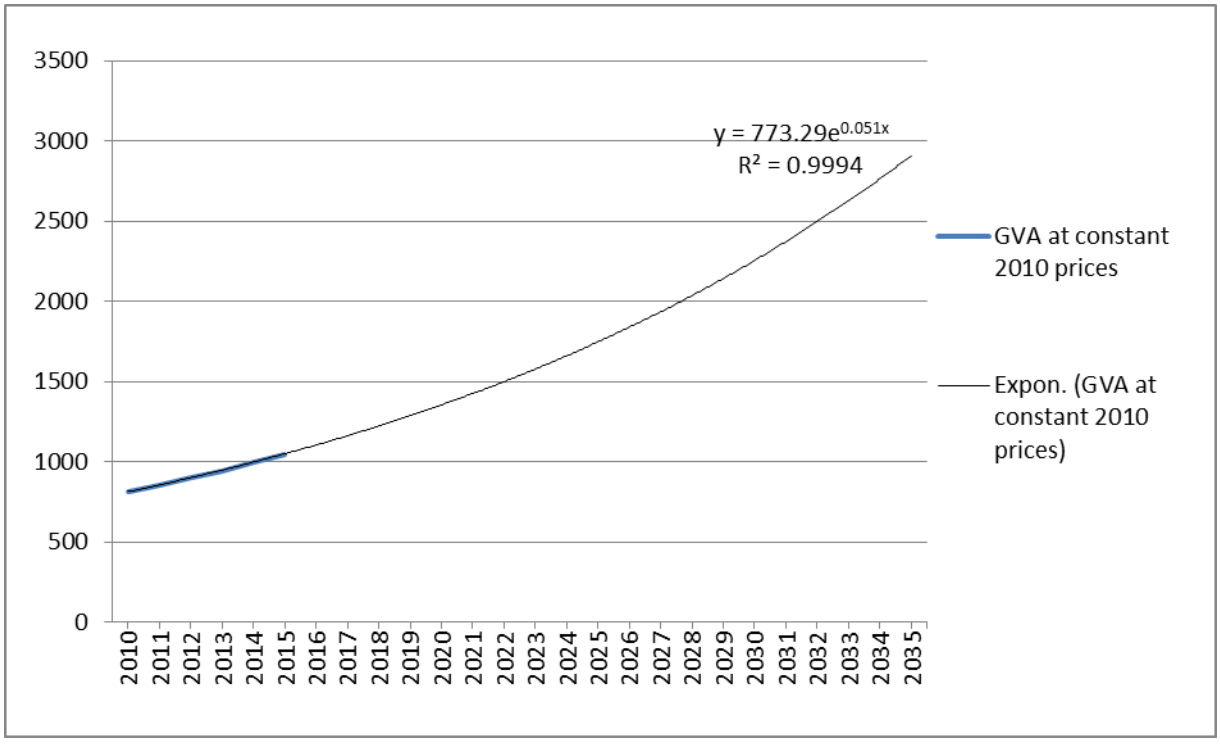

Figure 3.2: Trendline of Malaysian total GVA (base year = 2010)

Selected Creative Industry Sectors

The list of revenues and number of employment for the Film Industry were obtained from the National Film Development Corporation (FINAS) and the Recording Industry Association of Malaysia (RIM). These are added to data from DOSM in table 3.7. The Compulsory Screening Scheme or 'Skim Wajib Tayang (SWT)' was enforced by FINAS on Jun 23, 2005. The scheme was established to accept and consider any local or joint venture films for compulsory screening at cinemas by exhibitors and the revenues are presented in Figure 3.3

with reference year ranging from 2011 to 2015 (source: Commercial Division, FINAS). In the year 2011, the rise of Malay films from highest grossing box office collection is evident, with movies 'KL Gangster' and 'Ombak Rindu', as directed by Syamsul Yusof and Osman Ali, respectively. In the year 2012, there was big jump in the numbers of local film production to a total of 73 films released but this did not correspond to increased revenues which dropped to RM 85.93m from RM 108.58m. The revenue trend remained stagnant until year 2015, whereby it is gradually decreased to their lowest point of only RM 52.8m with a total of 80 films released, although 'Polis Evo' directed by Ghaz Abu Bakar managed to rake in RM17.47m.

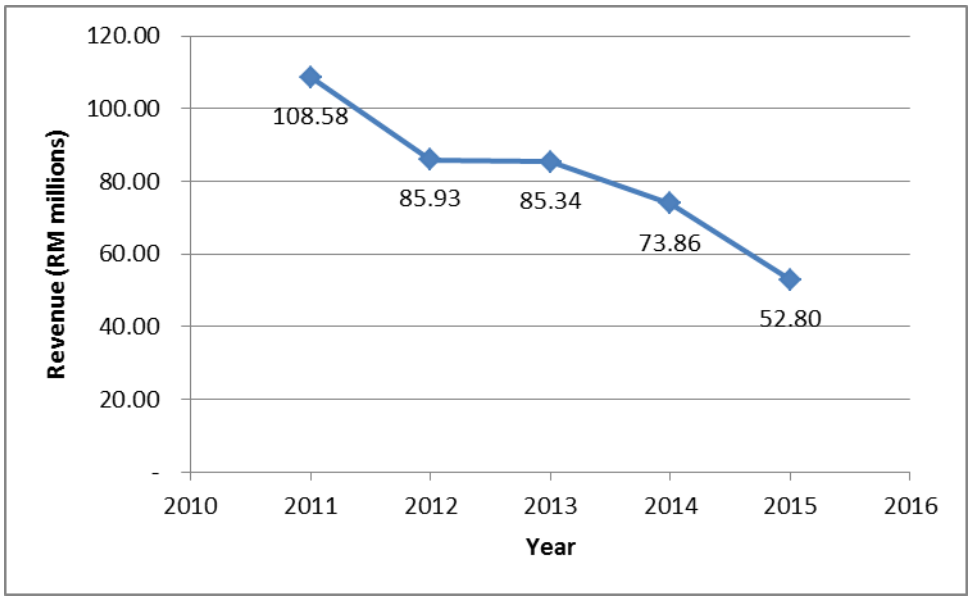

Figure 3.3: Revenue from film screening through Compulsory Screening Scheme.
Source: FINAS

It could be speculated that among the reasons for the drop in would be implementation of GST in 2015 which could have caused people to cut back on movies. They also had the option to choose from international films which are generally more appealing and entertaining. The lack of promotion and publicity may also have contributed to low box office collections (less than one million ringgit). In some cases audiences were not aware of some film.

DOSM also conducted an Economic Census of Arts, Entertainment and Recreation Services in 2011 for reference year 2010. This Economic Census is aim at collecting comprehensive information on the profile and structure of the economy and business activities

in Malaysia. It is conducted once in every five years. Based on the report, the value gross output for the 'Creative, arts and entertainment activities' and the 'Museums, recreation and other cultural activities' sector was RM 1.286bn with 8,758 employed.

The Recording Industry Association of Malaysia (RIM) gathered data from the local music industry which included physical and digital sales, licensing and annual public performance (Figure 3.4). In 2010, the music industry gained RM 172.97 million and it increased to RM 174.55 million in 2011. Between 2011 and 2013, there was a slight decrease of 2.5 per cent, or RM 170.1m. Afterwards, the revenues reached the peak of 4.4 per cent at RM 177.57 million in 2014 and remained steady in 2015.

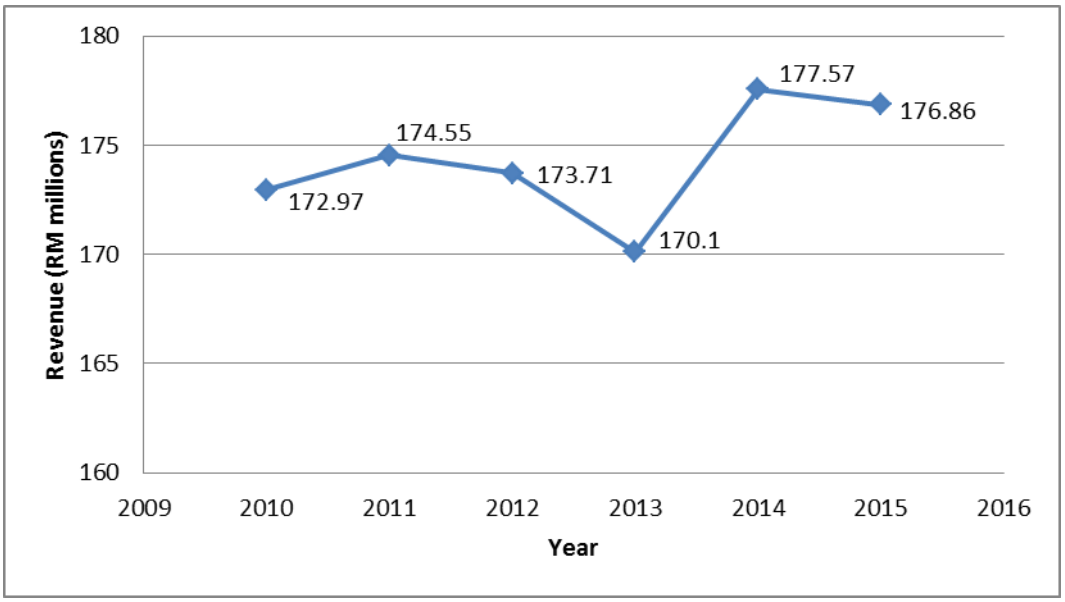

Figure 3.4: Music industry revenues.
Source: RIM

Table 3.5: Percentage change of GVA based on previous year.

Creative Industry's Group	Percentage Change on Previous Year				Annual Average Increase (2011-2015)
	2012	2013	2014	2015	
Information and communication	5.9%	6.6%	7.7%	7.8%	7.0%
Professional, scientific and technical activities	12.6%	12.8%	10.2%	8.2%	11.0%
Education	7.5%	5.7%	5.6%	5.5%	6.1%
Arts, entertainment and recreation Services	6.6%	5.9%	7.8%	7.0%	6.8%
Total Creative Industry	8.2%	8.6%	8.5%	7.8%	8.3%

Source: Department of Statistics Malaysia (DOSM)

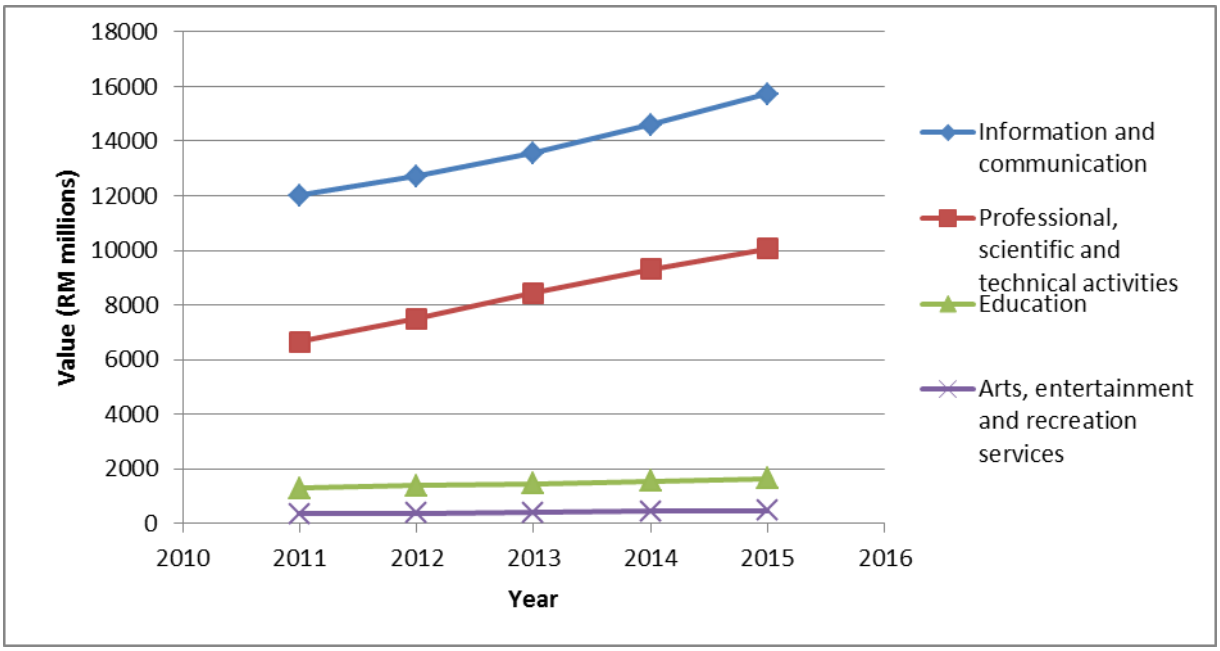

Figure 3.1: GVA of Creative Industry's sub-sectors.

Table 3.6: Prediction value of GVA until 2035 (base year = 2010)

		Total GVA of Creative Industry	**Total GVA of Malaysian economy**	**Annual Percentage**
		Value (RM billions)		
	2011	20.31	856.27	2.37%
	2012	21.98	902.258	2.44%
	2013	23.88	944.50	2.53%
	2014	25.90	1,000.87	2.59%
	2015	27.91	1,049.01	2.66%
Predicted value	*2018*	*36*	*1223*	*2.9%*
	2020	*42*	*1355*	*3.1%*
	2022	*49*	*1500*	*3.3%*
	2025	*62*	*1748*	*3.6%*
	2030	*93*	*2255*	*4.1%*
	2035	*139*	*2909*	*4.8%*

Table 3.7: List of revenues and number of employment for Creative Industry's Sectors from 2010 to 2015

No	Organisations	2010		2011		2012		2013	
		CI Revenue (RM '000)	CI Employment	CI Revenue (RM '000)	CI Employment	CI Revenue (RM '000)	CI Employment	CI Revenue (RM '000)	CI Employment
1	Perbadanan Kemajuan Filem Nasional Malaysia (FINAS)	-	-	108,580	-	85,930	-	85,340	-
2	Department of Statistics Malaysia (DOSM)	1,286,346	8758	-	-	-	-	-	-
3	Recording Industry Association of Malaysia (RIM)	172,970	-	174,550	-	173,710	-	170,100	-

Table 3.7: List of revenues and number of employment for Creative Industry's Sectors from 2010 to 2015 (contd.)

No	Organisations	2014		2015		Remarks
		CI Revenue (RM '000)	CI Employment	CI Revenue (RM '000)	CI Employment	
1	Perbadanan Kemajuan Filem Nasional Malaysia (FINAS)	73,860	-	52,800	-	Taken from film screening through Compulsory Screening Scheme.
2	Department of Statistics Malaysia (DOSM)	-	-	-	-	DOSM conducts census for every 5 years.
3	Recording Industry Association of Malaysia (RIM)	177,570	-	176,860	-	They do not have employment data.

Source: FINAS; DOSM; RIM

Discussion and conclusion

A data analysis on Creative Industry's economic contribution is first and foremost an exercise in getting the industry noticed and recognised. It can also raise awareness of the economic value of the creative industry and help create common frames of reference for talking about the industry. With this new definition, the Creative Industry is cutting across traditional industrial classifications and changing rapidly as technology evolves. They sometimes cluster together in certain places and each sector faces its own set of issues. Therefore, this analysis is done to reveal some of these patterns and how they are changing by raising the profile of the industry and provide evidence based on their size and contribution towards the national economy.

It should be noted that MSIC codes were established long before some of the Creative Industry evolved into their current form and the data obtained are only up to group level (3-digit codes). Data on Creative Industry needs to be separated from the non-creative ones to obtain the true value of industry's economic contribution.

Since DOSM is already collecting data on some aspects of the Creative Industry, as defined by UNCTAD, it would be expeditious to divide the Industry into the four divisions; the Arts, Media, Heritage and Functional Creations. The Satellite Account System (SAS) is a robust statistical framework for measuring the economic contribution of a specific industry within the national economy. At present, Cultural Satellite Accounts (CSA) for measuring the economic contribution of culture is used in most MERCOSUR (common market of the South) countries, and in some countries in Europe (Experian, 2007). An important characteristic of the CSA is its ability to systemise a large number of statistical data (social, demographic, financial and cultural), which makes it possible to use CSA not only for measuring the economic contribution, but also for analysing creative phenomena in the broad sense (OECD, 2007).

According to the Malaysia Ministry of Information, Communication and Culture, the Malaysian creative industry contributed RM9.4billion with a workforce of 45,000 in 2008. The figure was increased by 5.8 per cent (RM 9.94billion) of the Gross National Income (GNI) with a workforce of 100,000 in 2010 (Bernama, 26 Jan 2014). However, the data obtained from DOSM was much higher with RM20.3billion of GVA and 146,250 employees. By 2020, the government

was targeting a contribution of RM33 billion but based on the data obtained, the target will most likely be achieved by 2018.

To conclude, Creative Industry's economic contribution in 2015 was RM 27.9billion and accounted for 2.66 per cent of the Malaysian economy. Since 2010, the industry has generated 146,250 jobs and 10,559 establishments, which accounted for 1 out of 48 jobs in Malaysia.

SUBSECTOR NATIONAL OUTLOOK

Functional Creations

Because of the lack of a definition for the term Functional Creations and its identified role in Malaysia, persistent issues, such as putting a value to functional creation is a significant problem. In the 3rd College International Pour La Recherche en Productique (CIRP) International Conference on Industrial Product Service Systems, Technische Universität Braunschweig in 2011, functional creation has been defined as "an integrated industrial product and service offering that delivers value in use" (Hesselbach, 2011). For the Megascience 3.0 project, it is determined that Functional Creations can be divided into three categories, Built Environment; Fashion & Jewellery; Graphic and Advertising.

The areas under the design umbrella in Malaysia, such as architecture, interior design and urban design, have been quite clearly at the forefront of change. The global trend of design evolution has been identified, particularly in transition from mass production to flexible and customised production (Castell, 2010), as exemplified by a Shanghai-based WinSun Decoration Design Engineering company that successfully 3D-printed a single story house in April 2014 for under USD5,000.00 (FlorCruz, 2014). Malaysia, as an emerging economy with abundant natural resources and skilled human capital source within the many areas of science, technology and creative design, should be the haven for design. As such, Functional Creations could take a primary role as the agent of change in areas of architecture, urban and interior design, fashion, creative R&D, advertising, branding and graphic design for the region.

To make Malaysia a country ready for the future, it is crucial that its structure and organisation for design is equally ready to face the challenges throughout the entire realm of human activity. Even though design services have not been seen as a real value/contender within the creative economy in Malaysia, it is a significant contemporary part of the creative industry that needs to be developed to contribute toward the visual and experiential quality of a functional creation that is distinctively Malaysian. All of these goals can be achieved and enhanced through making full use of STI interventions and opportunities.

Today, the diversity of Functional Creations practices in Malaysia is a reflection of its cultural traditions based upon its pluralistic society and exposure to external influences over the decades. The vision of the future of Malaysia in 2050, together with its entire ethical, environmental, social, and political and ecosystem implications, is expected to be different and this will greatly influence Functional Creations.

The principles that should be adopted for Functional Creations subsector of the Creative Industry are proposed below:

- *The national culture must be based on the indigenous culture of this region:*

The region involved covers ASEAN, as well as the South Pacific islands and Malagasy. As such, the culture of the indigenous people from this region, which, in a wider or narrower sense, refers to the Malay culture, forms the basis of the National Culture Policy. Functional Creations sectors like architecture, urban design, jewellery and fashion design benefits from the cultural principles. It helps brand and capture a Malaysian identity in the future.

- *Suitable elements from the other culture may be accepted as part of the national culture:*

Culture is a dynamic phenomenon, always changing through the on-going process of adaptation and assimilation. This principle takes into consideration the multi-cultural aspects in a multi-racial society. Such acceptance must be in accordance with the provisions in the Constitution and the principles of *Rukun Negara*, as well as national interest, moral values and the position of Islam as the official religion of the country. This principle allows for cross-culture and interlink between different practices within the functional creation sector to allow for a conducive and positive exchange of cultural richness and growth, and work as an enabler towards social and cultural evolutions and technological revolutions

- *Islam is an important component in the formulation of the national culture:*

Religion or the belief in God is important in the development process of a country and also in the personal development of the people. Hence Islam is an important element in formulating the National Culture Policy based on its position as the official religion of the country. This principle

help frame the education, training and talent management is believed as the core foundation for any success story.

Media

Over the coming five years, global entertainment and media revenues will continue to grow – in line with its historical trend – slightly behind global GDP. But this apparently consistent picture masks deep discontinuities, as digital drives revenue growth and spending diverges across different segments and countries. In 2018, non-digital media will continue to account for the largest share of global spending, TV will still be the biggest advertising medium, and the US will be the world's biggest entertainment and media market. But digital revenues, Internet advertising and China will all have dramatically narrowed the gap.

Global entertainment and media outlook projects that the total global entertainment and media (E & M) revenues will rise from $1.6 trillion in 2011 to $2.1 trillion by 2016. It was also projected that there are three global shifts/ trends:

- From print to digital. For example, electronic books' share of total global spending on consumer and educational books will rise from 5% in 2011 to 18% in 2016
- From fix to mobile-driven consumption. Mobile internet access increased from 26% of total internet access spending in 2007 to 40% in 2011 and is projected to increase to 45% in 2016.

From west to east, north to south. During the next five years, total E & M revenue growth in East will average 7.2% compound annual growth rate (CAGR), compared to 4.3% CAGR for West. And the growth in the South will average 10.0% CAGR annually, more than twice the 4.5% in the North.

In this initiative, the media sub-sector covered Publishing (books, press and other publications), New Media (software, video games, digitised creative content) and Audio visual (film, TV, radio and other broadcasting).

Heritage

There are two areas under Heritage identified by UNDP/UNCTAD: Cultural sites (archaeological sites, museums, libraries, exhibitions) and Traditional (Arts and Crafts, Festivals and Celebrations). This is the narrower concept of Heritage than that used by UNESCO and Malaysia's Department of National Heritage. However, the UNDP/UNCTAD definition was adopted in Mega Science 3.0 and because of the limited expertise available to the study, a more limited scope was investigated: Galleries, Libraries, Archives and Museums (GLAM) and Traditional Arts and Crafts.

Due to the limited resources, the study was unable to obtain data pertaining to economic value and societal impact of GLAM and Traditional Arts and Crafts. A specific study should be carried out in the future by authorities concerned.

The Arts

According to the US Bureau of Economic Analysis in 2013 (National Performing Arts Convention, 2013), arts and culture in the US contributed $504 billion to its economy, more than the travel and tourism sector. Furthermore, in 2011, the production of arts and culture goods and services employed some 2.0 million workers. Meanwhile, the Arts Council of England has reported that the arts and culture sector contributed £5.9 billion to the UK GDP in 2011 (The Stage, 2013).

The statistics on the contribution of the Arts to the Malaysian economy is embedded in the creative content industry as a whole hence a 2nd phase study will need to be carried out to glean the segmented values. It is undeniable that technology has already impacted the Malaysian Arts scene. How STI advancement will further affect the Performing and Visual Arts should be studied and strategies formulated to allow the interaction between the two to grow.

While it is important to derive the economic contribution of the Arts in the context of the Creative Industry, the value of the Arts in defining the Malaysian cultural identity and their role

is the branding of the Malaysia's persona should be acknowledged and factored into the outcomes of the study.

FINDINGS FROM STAKEHOLDER ENGAGEMENTS

Functional Creations

Two exercises were conducted in each of the six workshops held in six states/Federal Territory in Malaysia. The table of participants in each workshop can be found in Appendix 1 (Sarawak), Appendix 2 (Sabah), Appendix 3 (Penang), Appendix 4 (Kuala Lumpur), Appendix 5 (Johor) and Appendix 6 (Terengganu). The first exercise focused on drivers that impact on the functional creations industry growth and the second focused on scenario building. A third exercise, on foresighting to 2050 and backcasting from 2050, was conducted in four states/ Federal Territory of Terengganu, Sabah, Penang, Kuala Lumpur and Johor. The first exercise looked at diverse drivers considered catalysts to changes and development for the future of functional creations sub-sector. In preparing for 2050 for the functional creations sector in Malaysia, participants did not regard STI as an important driver. Many states including the Kuala Lumpur recognised good education and training system as having the highest impact.

Combined with science, technology and innovation, it would promote and ensure constructive creativity (D8) because together with good education and training system it would help uncover and polish local talents (D7) in ensuring good design in the country. Good talent is an important asset within the functional creations industry which allows Malaysia to be competitive. In addition, "People & values" is also regarded as an important driver when people have steadfast morals and high integrity the health of the design industry will be ensured. These attributes are highly valued in Singapore and Europe where ethics of design reigns supreme.

However, states like Sabah, Sarawak and Terengganu were more concerned with what 2050 will bring to the local environment and values – how architecture and urban design could change the facade of their natural wealth. Hence, a transparent and trustworthy social politic, leadership and governance (D5) was regarded more important to ensure there will be no compromise on this matter. Figures 3.1, 3.2 and 3.3 shows the result of importance of drivers in the different stakeholder workshops organised.

The second exercise identified the future of the design industry in Malaysia: that it should be robust, grounded, highly sought after with good design practice and governance that would

grow with a consistent STI, economic and political policy. The consultative workshop with stakeholders also reaffirmed the importance of good education and training system which will produce talent and ensure the richness of design in terms of breadth and depth value and indispensable talent. Talent is an indispensable asset for Malaysia that will ensure the functional creation industry is at par with the first world nations. However, at the flip of the coin, a failing education eco-system will adversely affect the functional creation industry, leading to lack of competitiveness, talent, instability in governance and good practice. The catastrophic as the Malaysian functional creation disengages with current design issues and ends up importing all its design talent and subsequent design identity.

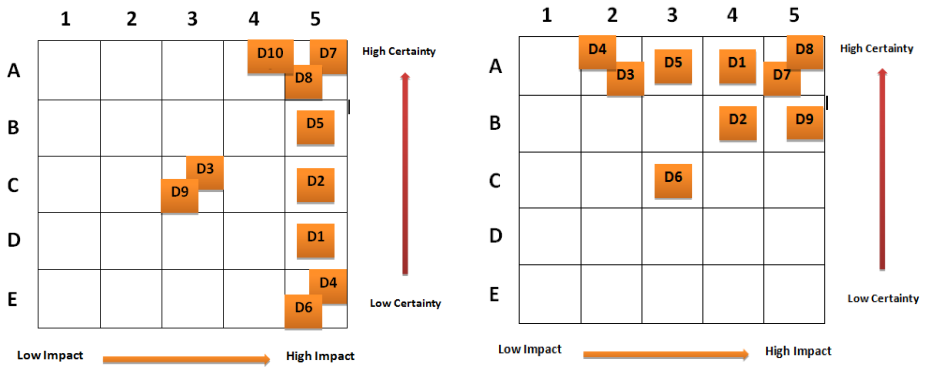

Figure 3.1 Drivers for change for Sarawak (left) and Sabah (right)

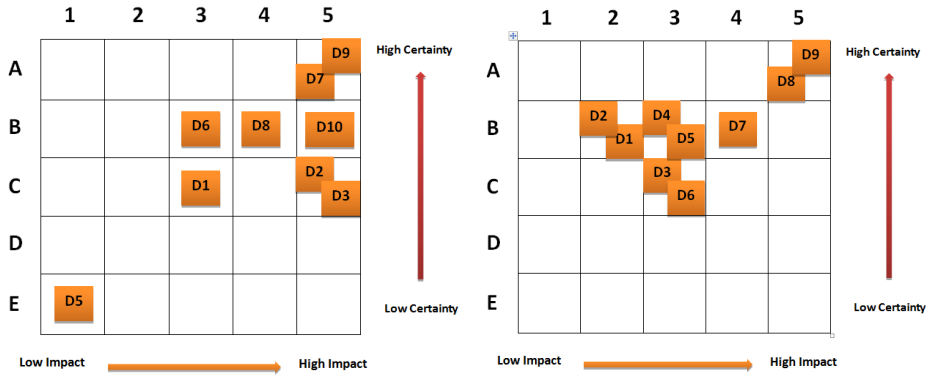

Figure 3.2 Drivers for change for Kuala Lumpur (left) and Penang (right)

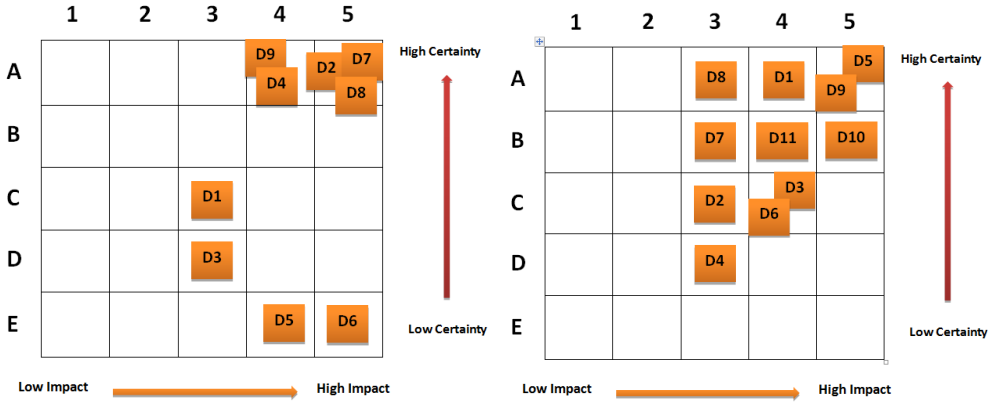

Figure 3.3 Drivers for change for Johor Bahru (left) and Kuala Terengganu (right)

Legend

D1	D2	D3	D4	D5	D6	D7	D8	D9
STI Capacity	Economic growth & distribution of wealth	Society & Environment	Population & Demographics	Socio politics, Leadership & Governance	Urbanisation	Talent	Education & Training	People & Values

Stakeholder engagements came up with the best and worst scenario as identified by each state as shown in Table 3.1.

Table 3.1 Functional Creations Scenario Planning through Stakeholder Consultation Workshop

STATE	BEST CASE	WORST CASE
Sarawak	• With good education & training system literacy in Sarawak is high with only 0.2% illiteracy, • Good talent pool where Sarawak can outsource it's talents, • Global recognition for Trademarks, Research & Development and Investment within the functional creation industry, resulting in only-0.02% unemployment • Robust and up to date education, city planning infrastructure.	• Education system changes every two years such as syllabus and Modules • Too many talents flooding the market with causal effect in employment • Income/Social Disparity • Rural migration (caused by poor planning, education and infrastructure).
Sabah	• Distinctive Sabahan design identity recognisable by its quality and competitiveness, • Facilities for encouraging good design and good practice is well developed, • High culture-based creativity is valued by both local and international society, with excellent business skills from product to talents outsourcing.	• No proper facility for training, lack of good educational system and governance, resulting in losing Sabah local identity and talents in design are lost in translation.
Penang	• Grounded colourful culture and strong heritage protection • Expert community- influx of local and overseas talent due to a good design practice and demand , • Centre of Educational Excellence for functional creation, • With good urban design and policy, there is no traffic problem • Design in Penang is so diverse it allows for value for money project	• Penang loses all natural resources and talents, • Major traffic congestion • Losing bio-marine resources • Losing UNESCO heritage status
Klang Valley	• Design is led and enriched by local talents & identity and not what is subscribed by authorities • Creativity within the functional creation industry is highly awarded and appreciated • Malaysia owns a successful global brand- IP	• Status quo: the design industry look outwards, no recognition within the many sectors of the Functional Creations industry and the blanketing of the term Creative Industry
Johor	• Malaysia via JB becomes a regional hub for design • Sustainable design eco-system, exercise, practises etc. • Best IP ownership and able to sell and compete globally, • One of the world major economic growth and player in design industry • Allowing for different yet robust qualification & accreditation for functional creation (level of compliancy)	• With too many talents within functional creation it will create fierce and unregulated competitiveness for talents, • Mismatch talents and effecting the qualities of end product • Constant shifting of economic policy • Paper qualifications no longer important, • Gap between industries needs and academia curriculum

STATE	BEST CASE	WORST CASE
Terengganu	• Increase usage of smart technology - 70% technology accepted example: computer, smart phones, internet, • Higher quality urban planning and architecture within Kuala Terengganu urban landscape, similar to Kuala Lumpur • Cultural heritage preservation • Sufficient job opportunities, • With better design economy, it will increase and upgrade life style • Good talents will stay and develop KT as a competitive design hub	• Education system, talent skill and conventional mind-set will not change, • Facilities for design industry and training are neglible, • Low government support for the FC industry, • Slow, expensive and difficult accruement of smart technologies to KT, • Unstable political climate

Media

Two exercises were conducted in each of the six workshops held within the six states including the Federal Territory. The table of participants in each workshop can be found in Appendix 1 (Sarawak), Appendix 2 (Sabah), Appendix 3 (Penang), Appendix 4 (Kuala Lumpur), Appendix 5 (Johor) and Appendix 6 (Terengganu). The first exercise focused on drivers that impact on the functional creations industry growth and the second focused on scenario building. A third exercise, on foresighting to 2050 and backcasting from 2050, was conducted in six states, including the Federal Territory of Kuala Lumpur, Terengganu, Sabah, Sarawak, Penang, and Johor.

The observations from the first exercise are as follows:

1) Each state had diverse views on which drivers were high impact and has high uncertainty.
2) Majority of the states voted ‘Economic Growth & Distribution of Wealth’ and ‘Sociopolitics, Leadership & Governance’ as the two drivers having high impact and high uncertainty.
3) Majority voted ‘Peoples and Values’ as the most important factor for achieving success in the industry.
4) ‘Education and Training’ was identified as important for success. Most stressed on holistic education and training system that combined science, innovation and creativity.

5) Other values deemed to have high impact were 'Economic Growth & Distribution of Wealth' and 'Talent'.

Table 3.2 summarises the best case scenarios and worst case scenarios (business as usual with no changes or intervention on the current situation) for all six states where forums were conducted. The main similarity of scenarios touches on the importance of talent in the development of the industry. Majority of the participants stressed that they wished to produce world class creative talent that would be recognised globally. Most states also expressed hope that their state would become the hub for the Creative Industry in 2050. To ensure that states and Malaysia become competitive and achieve the dream to become a world class player in Creative Industry, participants agreed that certain support and enablers such as high speed and low cost internet services, ultra-super computer, grant, investment and the revamp of education and media policies were needed.

Table 3.2 Media Scenario Planning through Stakeholder Consultation Workshop

State	Best Case	Worst Case
Sarawak	- Less restriction on policies – media & news - Free flow of content (news & global issues) - Malaysia made new media contents being recognised worldwide	- More restrictions - Ban on certain type of technologies (internet content)
Sabah	- Global player - UNESCO recognized - Regional hub for culture, heritage and identities - Native pop (ASEAN context) - Heritage & entertainment park	- Talent migration - Entry of outsourced talent - Sabah becoming third world state (migration) - Artisan creating negative work
Penang	- Penang as smart city - Producer + supplier of world creative talent - Best infrastructure in the world - Penang as smart city - Complete freedom of thought - Heritage top in SEA / *Kearifan tempatan* - Own software with Malaysian values - People can make good income based on their interest	- Bad talent retention - Downfall of economy - Populated with outside producers (no opportunity) - Failed policies
Klang Valley	- Top quality of education in tertiary, secondary, primary producing talents - Top IPs generating global relevance + revenue - Education system revamped with focus given to creativity in arts - World class talent: Malaysian and foreign attracted to Malaysia - Strong STI capacity to support creativity - FDI for the region focuses in Malaysia	- Talent brain drain accelerates - High taxation - Increased censorship and government control - Loss of cultural heritage - FDI goes to other nations in our region

State	Best Case	Worst Case
	- Investment is happening from private sectors - Tax initiative for corporation to contribute to creative industry	
Johor	- The conducive ecosystem: - Incentive / funders i.e. VCs - SME / Entrepreneur Hub - Talent - Protected IP / Fast approval - Inclusiveness - Best infra - Open network (human)	- People & Value not ready to adopt to government's effort - First causes disruption in social & environment - Disruptive world economy
Terengganu	- Silicon valley for 3D industry / multimedia - Multimedia / creative subject taught in primary school - Less restriction / having IT-wise policy makers - Fast & free internet - Ultra-computer - Grant / Funding / investor - Education policy	- Proliferation of foreign products - Brain drain - Demand of free content

Throughout the workshops, findings from the exercises and discussions were classified into five categories in Table 3.3.

Table 3.3 Findings under Media subsector

Category	Findings
Challenges	• Media backbone infrastructure is behind other countries in terms of broadband access, speed, cost etc. • There is a big gap in developmental plans between Klang Valley and other states • Industry needs government support rather than control. Too many restrictions imposed on the industry. For example content censorship and restricted movement of content such as news • Too much foreign content in local market • Too little demand for local content. • Malaysian content is not recognised in global market • Lack of DDI and FDI for Creative Industry
Governance	• Confusing government policies which are not in tandem • There is a need for a more focused and targeted policy and strategy plans for various sub sectors in Creative Multimedia Industry. This resulting in states government have to make their own effort to develop their own states with no proper support from central government • Industry needs government support in developing the industry instead of government control. Too many restriction imposed on the industry. For example content censorship and restricted movement of content such as news • Lack of good ecosystem to support the growth of the creative industry • There is a need to assimilate and preserve local culture in creative industry
Coordination and Collaborations	• Lack of inclusiveness of Central government's developmental plan for industry. This results in state governments having to make their own efforts to develop their own states with no proper support from central government • Diverse views on which drivers are high impact and has high uncertainty
STI Implications	• Insufficient incorporation in products, services and experiences of new technologies
Capacity building/ Talent development	• Lack of holistic education and training system that includes creativity • The potential of local talent and resources in creative industry has not been fully tapped resulting in brain drain due to lack of opportunities in local industries • Shortage of skill workers for Media • The potential of local talent and resources in creative industry not fully tapped

Heritage

Findings

Two events with stakeholders produced several important findings with respect to GLAM (Galleries, Libraries, Archives and Museums) and Traditional Arts and Crafts. The table of participants in Creative Industry Sector's Teh Tarik Talk Series (IV) on the Future of Museums and Creative Industry Sector's Teh Tarik Talk Series (III) on the Future of Traditional Arts and Crafts events are in Appendices 10 and 9, respectively. These findings are listed in Tables 3.4 and 3.5.

i. GLAM (Galleries, Libraries, Archives and Museums)

Table 3.4 Findings on GLAM (Galleries, Libraries, Archives and Museums) under Heritage subsector

Category	Findings
Coordination and Collaboration	There is a disengagement between museums and other groups
Capacity Building / Talent Development	GLAM is not an important component of formal and informal education
Outreach	Very few Malaysians visit local GLAM
S&T Implications	Big Data can be presented using current technology Disruptive technologies will have large impact Big opportunity to develop Heritage Science as a new field
Challenges	There is no Museum of Natural History

i. Traditional Arts and Crafts

Table 3.5 Findings on Traditional Arts and Crafts under Heritage subsector

Category	Findings
Coordinationa and Collaboration	Lack of interdisciplinary interaction between craftsmen
Capacity Building / Education	In the Pewter Industry, it has been identified that School Leavers are interested in pursuing careers in craft. On the other hand, there is a lack of interest of young people for the *batik* industry
S&T Implications	Low awareness and utilization of latest technologies
Challenges	Inavailability of materials for mass production (such as wood)
	Lack of standardization for export purposes
	Copyright infringement rampant

The Arts

Two events were held with stakeholders and several important findings were identified. The table of participants in Creative Industry Sector's Teh Tarik Talk Series (I) on the Creative Industry towards 2050 and Creative Industry Sector's Teh Tarik Talk Series (II) on the Future of Malaysian Arts events are in Appendices 7 and 8, respectively. These findings are listed in Table 3.6.

Table 3.6 Findings on the Performing Arts and Visual Arts under the Arts subsector

Categories	Findings
Coordination and collaboration	There is no a one-stop-agency on Creative Content in Malaysia
	Malaysia does not have a main authority for the Arts due to disengagement between relevant Ministries (MOE, MOTAC and MOF) to improve the state of the Arts in Malaysia. No national Arts Council

Categories	Findings
	The Arts grossly undervalued in Tourism industry
Capacity Building/ Education	Capacity building for the Arts is not a priority in the country
Outreach	To enhance opportunities in and exposure to Creative Industry
	Malaysian society generally not interested in the Arts
S&T Implications	There is limited use of latest technologies due to lack of awareness and funding
	Research on the Arts field's technology-related issues has not been initiated
Challenges	Political and religious groups pressure such as censorship impact the Malaysian Creative Industry
	Lack of fund to support, maintain and incorporate technologies for the Arts by the Government
	Difficulty for the Malaysian creative content to be exported due to its quality (content and method etc.)

CHAPTER 4 GOVERNANCE OF THE CREATIVE INDUSTRY

GLOBAL SCENARIO

The existence of policies in the creative industries of the world implies that these industries have produced new consumption patterns and identities that harness a specific form of cultural capital and strategy of regional dominance (Yue 2006). The current forces of global informational capitalism have realigned regions, nations, markets and identities creating impacts upon governance and culture, especially in the Asia-Pacific region, which is experiencing the most rapid rate of modernisation and development in the last two decades. A strategy characterised by a multicultural blend of old exoticism and new urbanism that fuses technology with the heritage of tradition that mixes the East and the West, is used as a way of harnessing the region's unique distinctiveness (Yue 2006).

Australia's drive towards a knowledge economy and its recent cultural policy research saw the rise of several creativity related policy instruments (Creative Nation 1994; Government of Queensland 2002; Government of Victoria 2003). This is believed to not only create new industries and business services, but also promote Asian values. In these instances, the cultural institutions function as "the governmental framing of culture" (Cunningham 1992, p. 22). The objectives of cultural and media institutions include traditional "gate keeping" roles such as the preservation of heritage and tradition, the maintenance of national identity, the modernisation of the nation, the inculcation of cultural pride and the creation of wealth.

According to UNCTAD (2010), a right mix of public policies and strategic choices are essential for harnessing the socio-economic potential of the creative economy for development gains. For developing countries, the starting point is to enhance creative capacities and identify creative sectors with greater potential through articulated cross-cutting policies. Efforts should be oriented towards the functioning of a "creative nexus" able to attract investors, build creative entrepreneurial capacities, offer better access and infrastructure to modern ICT technologies in order to benefit from global digital convergence, and optimize the trade potential of their creative products in both domestic and international markets. A positive spillover effect will certainly be

reflected in higher levels of employment generation, increased opportunities for strengthening innovation capabilities and a high quality of cultural and social life in those countries.

Given the potential that creative industries have to offer to Europe's economy, the European Creative Industries Alliance was established in 2012 as a part of the "Innovation Union" and the "Industrial Policy" flagship initiatives.

The European Union considered a number of issues and policy recommendations that could help unlock the potential of the European creative industries for growth and innovation. Some of these that could be relevant to Malaysia include:

- Stimulate cross-sectoral innovation through public-private innovation challenges
- Test new and review existing business support services and financing schemes
- Develop and support capacity building in regional clusters
- Enable and support SME internationalisation efforts
- Launch new and innovative financing schemes to support creative SMEs
- Stimulate investments in creative industries through effective regional ecosystems
- Support new initiatives to achieve better Intellectual Property Valuation for creative SMEs
- Map and measure the effects and value of the creative industries in the wider economy
- Incentivise and support stronger advocacy for cultural and creative industries

Several of these elements have been covered in the Dasar Industri Kreatif Negara but its implementation is in limbo due to a lack of a clear 'leader' or 'white knight'.

NATIONAL SCENARIO

Cultural governance is a tool to bring the creative arts and culture from the margins of political agendas and to promulgate the role that institutional and non- institutional bodies can play in this process. The emphasis is on the importance of "local" action to sustain creativity. Recent discussions and debates focus on cultural development, particularly referring to the contribution of non- governmental organisations as a key partner/stakeholders in nurturing creativity and

diverse forms of expression which are based on the following principles: openness, participation, accountability, effectiveness and coherence.

In Malaysia the first and foremost governing policy is the 1971 National Cultural Congress which tackles issues of cultural and racial sensitivity, regulative and constitutive censorship, and diverse creative principles. It comprises three important principles:

1. The National Culture must be based on the indigenous [Malay] culture.

   The region involved covers ASEAN, as well as the South Pacific islands and Malagasy. As such, the culture of the indigenous people from this region, which, in a wider or narrower sense, refers to the Malay culture, forms the basis of the National Culture Policy. Functional creation sectors like architecture, urban design, jewellery and fashion design benefits from the cultural principles. It helps brand and capture a Malaysian identity in the future.
2. Suitable elements from the other cultures may be accepted as part of the national culture.

   Culture is a dynamic phenomenon, always changing through the on-going process of adaptation and assimilation. This principle takes into consideration the multi-cultural aspects in a multi-racial society. Such acceptance must be in accordance with the provisions in the Constitution and the principles of *Rukun Negara*, as well as national interest, moral values and the position of Islam as the official religion of the country. This principle allows for cross-culture and interlink between different practices within the functional creation sector to allow for a conducive and positive exchange of cultural richness and growth, and work as an enabler towards social and cultural evolutions and technological revolutions

3. Islam is an important component in the moulding of the National Culture.

   Religion or the belief in God is important in the development process of a country and also in the personal development of the people. Hence Islam is an important element in formulating the National Culture Policy based on its position as the official religion of the

country. This principle help frame the education, training and talent management is believed as the core foundation for any success story.

GOVERNANCE: SUBSECTORS

Functional Creations

The NCC of 1971 is an important governing policy as it tackles issues of cultural and racial sensitivity, regulative and constitutive censorship, and diverse creative principles, giving Malaysia a unique and distinctive functional creation flavour. Apart from the National Cultural Policy of 1971 blanket governing policy, the Functional Creations sector also refers to a few important instruments for governance based upon the Malaysian Laws and Policy o Art and Culture 2007 derived upon a number of acts and regulations like the Antiquities Act 1976 (Act 168), National Art Gallery Act (1959), National Archive Act 1996 (Act 44, revised 1971 as Act A85, revised 1993 Act 511), Tourist Development Corporation of Malaysia Act 1972 (Act 1972) and Theatres and Places of Public (Federal Territory) Act 1988 (act 182) among many others. The relevance of these instruments to the components of Functional Creations is shown in Table 4.1.

The Functional Creations sector governance can be specifically identified as:

1) Built environment governance that includes architecture, urban design and interior design are governed by the planning and policies adopted by the art and architecture development in Malaysia. This includes the Local Government Act 171 (2005), Malaysian Laws and Policy on Art and Culture (2007), the National Art Gallery Policy (1958), and the National Heritage Act 645 (2006) - which helps the understanding of traceable and non-traceable elements that influenced the Malaysian, built environment practice. These policies address the funding, sitting and reception of architecture, interior design and urban design artwork; promotion and the production of, and the professional development of built environment practices via the planning system in Malaysian cities. It also covers issues pertaining to censorship and regulations, the purpose of urban development and regeneration and finally with issues like site-specificity and patronage.

Table 4.1 Relevance of Policy and enactment for functional creations sector

No.	Related Policies & Acts	Architecture	Interior Design	Urban Design	Fashion Design	Jewellery Design	Graphic & Advertising
1	National Cultural Policy 1971	/	/	/	-	-	/
2	PAM/LAM Enactment	/	/	/	-	-	-
3	Malaysian Laws and Policy on Art and Culture (2007)	/	/	/	/	/	/
4	National Archive Act 1996	/	/	/	-	-	-
5	National Heritage Act 645(2006)	/	/	/	-	-	-
6	The Copyright (Amendment) Act 1997	/	/	/	/	/	/
7	Local Government Act 171 (2005)	/	/	/	-	-	-
8	Communications and Media Act 1988 (Act 588)	-	-	-	-	-	/
9	The Malaysian Law and Policy on Art and Culture 2007	/	/	/	/	/	/
10	Promotion of Investment Act, 1986	-	-	-	/	/	-
11	Industrial Designs (Amendment) Act 2000, 2002, 2013	-	/	-	/	/	-

2) Visual communication sector that includes, graphic design, advertising and branding employs a more generic governance and policies based upon The Malaysian Law and Policy on Art and Culture 2007 and three enactments (Act 168, Act 511 and NAG Act 1959), The Copyright (Amendment) Act 1997, and Communications and Media Act 1988 (Act 588) are currently being used as references.

3) The fashion and jewellery sector which includes textile and wearable employs Malaysian Laws and Policy on Art and Culture (2007), Promotion of Investment Act, 1986 (to encourage investments in the textiles and textile products industry, several textile products/activities have been gazetted as promoted products/activities) and Industrial Designs (Amendment) Act 2000, 2002, 2013 (Act A1077, Act A1140, Act 1449) under the MyIPO of the Ministry of Domestic Trade, Cooperatives and Consumerism umbrella.

Media

All focus areas of the media are affected and impacted by governance, economics and finance, and society and cultural elements (Table 4.2).

Table 4.2 Governance, Economics & Finance, and Society & Cultural

G, E & F, and S& C / Focus Areas	Governance	Econs & Finance	Society & Culture
1. Publishing	/	/	/
2. New Media	/	/	/
3. Audio Visual	/	/	/

Today, the media industry is strongly influenced by the growing role of social networks. These new tools, such as blogs, forums and wikis, facilitate connectivity and collaboration among creative people, products and places. Pragmatic policymaking requires a better understanding of who the stakeholders are in the media business, how they relate to one another and how this sector relates to other sectors of the economy. Policies and initiatives should be specific rather than generic, and preferably not top-down or bottom-up but allowing for ownership and for partnerships involving stakeholders from the public and private sector, artists and civil society. Schemes that are more inclusive and flexible will facilitate effective and innovative measures to revitalize the creative economy.

The existing policies affecting the three sectors of the Malaysia Media industry are shown in Table 4.3. It shows that the most heavily regulated Media subsector in Malaysia is audio-visual.

Table 4.3 Policies and Acts that pertain to Media subsector issues

No.	Related Policies & Acts	Audio Visual	Publishing	New Media
Environment				
1.	Dasar Kebudayaan Kebangsaan	✓	✓	✓
2.	Dasar Perfileman Negara (Finas)	✓		✓
3.	Dasar Perpaduan Negara	✓	✓	✓
4.	Etika Penyiaran	✓		
5.	Etika Kewartawanan		✓	
6.	Content Code Forum (under MCMC)	✓	✓ *	✓
7.	Akta Penapisan Negara (under KDN)	✓	✓	
8.	Plan Induk Pembangunan Industri Musik	✓		✓
9.	Education Act	✓	✓	✓
10.	National Book Policy		✓	
11.	Women Action Plan 2	✓	✓	✓
Trade				
12.	Women Action Plan 2	✓	✓	✓
13.	National Book Policy		✓	
14.	Printing Presses and Publication Act		✓	
15.	Dasar Telekomunikasi (under MCMC)	✓	✓ *	✓
16.	Wajib Tayang	✓		✓
17.	Plan Induk Pembangunan Industri Musik	✓		✓
18.	4Ms (for advertising)	✓		
19.	MIM/ Made In Malaysia	✓		✓
Labour				
20.	MIM/ Made In Malaysia	✓		✓
21.	Education Act	✓	✓	✓
22.	Plan Induk Pembangunan Industri Musik	✓		✓
23.	Etika Penyiaran	✓		
24.	Education Act	✓	✓	✓
IPR / Certification				
25.	Intellectual Property Commercialization Policy	✓	✓	✓
26.	National Intellectual Property Policy	✓	✓	✓
27.	Content Code Forum (under MCMC)	✓	✓	✓

*Only applicable to electronic / digital publication

Publishing

Currently publishing in Malaysia is governed by the Printing Presses and Publications Act 1984. Apart from that, Communications and Multimedia Act 1998 is governing e-publishing and all forms of expressed electronically. Other related policies that governed the publishing sub-sector are Dasar Kebudayaan Kebangsaan, Dasar Perpaduan Negara, Content Code Forum (for e-publishing), Dasar Telekomunikasi (for e-publishing), Akta Penapisan Negara and Education Act 1996.

New Media

New media in Malaysia is governed by seven acts of law and policies, namely, Dasar Kebudayaan Kebangsaan, Dasar Perpaduan Negara, Content Code Forum (under MCMC), Dasar

Telekomunikasi (under MCMC), Akta Penapisan Negara (under KDN), Printing Presses and Publication Act and Education Act.

Audio-Visual

The audio-visual sub-sector in Malaysia is governed by nine acts of law and policies such as Dasar Kebudayaan Kebangsaan, Dasar Perfileman Negara (Finas), Dasar Perpaduan Negara, Content Code Forum (under MCMC), Dasar Telekomunikasi (under MCMC), Plan Induk Pembangunan Industri Musik, Wajib Tayang, Made In Malaysia (MIM) and Education Act.

Heritage

Regulatory instruments that affect the Heritage subsector are the National Heritage Act of 2005 and Perbadanan Kemajuan Kraftangan Malaysia Act of 1979.

The Arts

Regulatory instruments that affect the Arts subsector are National Intellectual Property Policy, Intellectual Property Corporation of Malaysia Act of 2002, Layout-Designs of Integrated Circuits Act of 2000, Geographical Indications Act of 2000, Industrial Designs Act of 1996, Copyright Act of 1987, Patents Act of 1983, Trade Marks Act of 1976, Akademi Seni Budaya dan Warisan Kebangsaan Act of 2006 and National Art Gallery Act of 1959.

Majority of participants in the Creative Industry Sector's Teh Tarik Talks Series supported the establishment of a National Arts Council that would oversee the development of the Arts.

CHAPTER 5 TALENT DEVELOPMENT

INTRODUCTION

As the Creative Industry sector continues to grow and expand, it creates employment opportunities. However, for the industry to continue its strong growth, it requires the right set of skills. In the UK alone, graduates represent two thirds of the workforce in interactive media, literature, computer games, TV and radio. In animation, the proportion of graduates jumps to 80% (Dervojeda et al, 2013). Therefore, a good tertiary education and a system that promotes creativity and innovation are paramount to the growth of the industry. However, many companies in the creative industries, especially in the areas of video games production and IT and software, are likely to experience skills shortages and there should be a concerted effort to address these in the creative fields.

While many questions still remain unanswered in the sector – such as intellectual property rights – the potential of the creative industry to generate jobs is clear. Throughout the world the industry is characterised by high percentages of SMEs and freelancers, growth and expansion opportunities for new job creation, and young and recent graduates in need of an initial work experience (Pompa, 2015).

Tomorrow's creative industry will require an even richer fusion than today's of knowledge and skills from individuals who are comfortable working across the boundaries of established disciplines. At all levels in the education system, from school curriculum design to university–industry links, the arts and humanities must be integrated with digital technology and computer science.

In schools, a major implication is that rigorous curriculum in both art and in design and technology should be included. Universities and other educational providers should be further encouraged to offer courses which equip students with the craft and technical qualifications, but also soft and commercial skills that the creative industry needs. On the vocational education and training side, the private sector should invest in skills of its workforce on the fields of new technologies pertaining to textile, broadcasting, music, video games, high-end TV productions,

film and animation and more. Massive Open Online Courses (MOOCs) provide another route to create much needed talent (Bakhshi et al, 2013).

New dynamics are playing out in the education sector. Access to branded, high quality content is no longer bounded by classrooms. It is being distributed globally by a new set of distribution methods which allows for much more scalable reach challenging traditional educational payment and delivery models. (Deloitte, 2015).

SUBSECTOR TALENT DEVELOPMENT

The Arts

In the Arts, where talent grooming can be problematic, the strategic government approach taken by Singapore is shown in Figure 5.1 and can be emulated by Malaysia (National Arts Council, 2008).

It will be necessary to modify this scenario for Malaysia, to include on-going programmes at ASWARA, the universities, (eg UM, UKM, UiTM), private enterprises (eg. Enfiniti Academy), and individual initiatives (eg SUTRA by Ramli Ibrahim).

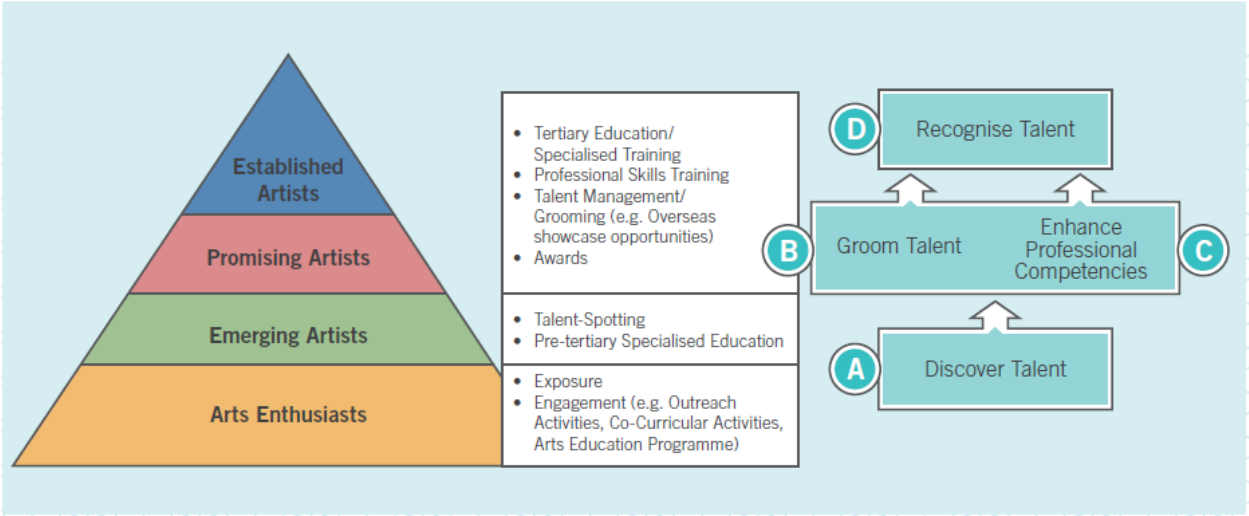

Figure 5.1 Developing a comprehensive capability development framework

Media

Talent is key to the growth of the Media Industry. Government must continue to enhance the reform of training and education with real partnerships between the academia and industry established to provide the mix of skills needed over the next 30 years and beyond. According to the MSC Malaysia Talent Supply-Demand Study 2013 – 2017, the demand and supply for creative talent is growing at 11.7% and 1.9%, respectively (Figure 5.2). Without a matching growth in the supply of talent, the demand-supply gap is expected to widen. The Strategic Plan formulated by MDEC to bridge this gap is shown in Figure 5.3.

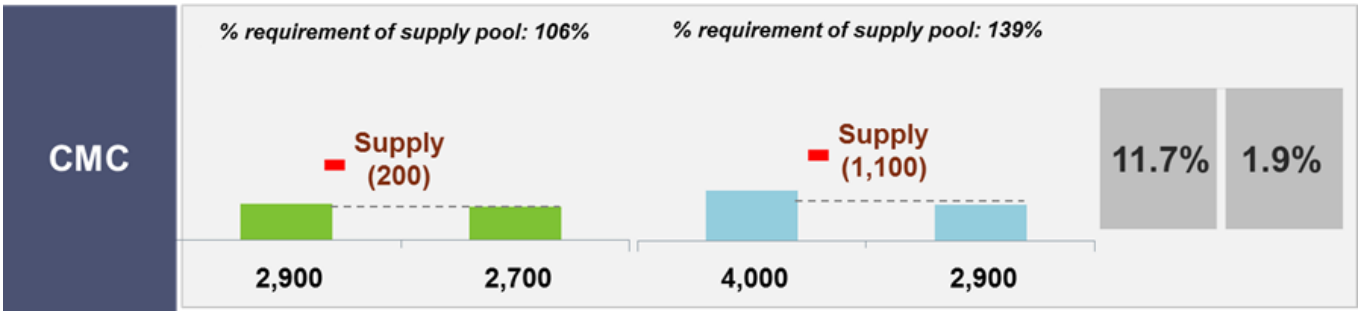

Figure 5.2 MSC Malaysia Talent Supply-Demand Study 2013 – 2017

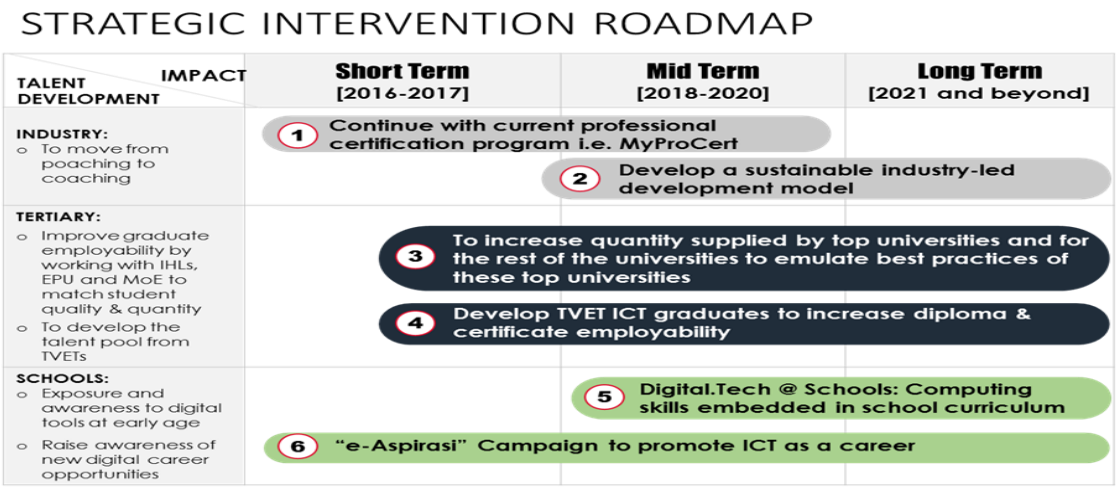

Figure 5.3 MDEC Strategic Plan For Human Capital

There are major needs for convergence of arts and science in the future education system to provide relevant human resources for the media industry. There is a close relationship between content production and technological innovation. This is a result of consumers demanding new ways of interacting with content but also innovation from creative professionals in the use of

technologies. Content creators have driven technological development, challenging inventors, scientists and engineers to meet their creative vision. This include the application of performance capture and augmented reality tools in production, the development of social, second screen and connected TV, merging the physical and digital worlds in wearable technologies and the emerging internet of the things.

Stakeholders who were consulted proposed a set of strategies for education system revamp and to rectify the shortage of skilled creative workers for the media industry. Such a revamp of entails changing the current system to one which fully supports lifelong learning and is responsive to changing needs of participants, enterprise and the community. In short, the strategy must be flexible enough to cater for the needs of rapidly changing environment.

The Strategy Plan for Talent Development as agreed by the stakeholders is as follows:

1. To support an increase in the supply of skills to the labour market.
2. To create awareness of the potential of creative multimedia industry as potential career path for young people that will tackle the issue from grassroots level through to parents.
3. To have specific focus on inclusion to support participation in education and training and the labour market.
4. The quality of teaching and learning at all stages of education should be continuously enhanced and evaluated.
5. To engage in lifelong learning.
6. To have more train-the-trainer programmes to increase the competence level of the trainers or lectures.

Education and Training were identified by the majority of stakeholders as important values for success in the Creative Industry. Most of them stressed on holistic education and training system that combined science, innovation and creativity.

From research conducted in six regions in Malaysia, short and long term strategies for talent development are as follows:

Short term:

- Reskilling the current workforce (upskilling),
- Education becomes open, accessible and high-quality,
- STIC Education convergence,
- Train talent and train the trainer
- Outsource to Learn from Others
- Promote creative multimedia courses to publics (parents and youth)

Long term:

- Change the awareness and mentality of the public on career potential in in Creative Multimedia sector especially with parents and youth,
- Top quality of education from primary to tertiary producing talent for industry consumption
- Education system revamped with focus given to creativity in arts and strong STIC capacity to support creativity,
- World class talent (Malaysian and attracted to Malaysia). Apart from producing local talent, it is necessary to attract foreign talent to Malaysia. This can be done via more flexible immigration requirement for foreign talent recruitment purpose.

Heritage

The stakeholders agreed that the Department of Museums needs to be engaged in the development of talent in the Heritage Sector. This should be extended to galleries, libraries, archives and museums of the government and private sectors.

In terms of Heritage Science, participants proposed that special courses at Universities need to be developed and nurtured.

Functional Creations

In finding direction for Malaysia creative economy in 2050, it is important to set a pathway leading to that world – a pathway that will require fundamental changes in governance structures, economic frameworks, business and most important of all the management of human capital/talent and funding in support of the training and development of talent. Strategic visions for 2050 must support local talents, develop a talent pool source and provide a creative creation eco-system based upon nine key drivers of action. This is important for Malaysia's Functional Creations sector. The pathway and its elements are marked by massive opportunities: to do more with less, to create value, to prosper, and to advance the human condition.

These changes are necessary, must be feasible and offer tremendous opportunities for local creative industry to be led by local talent as one of its growth strategy. The potential of local talent and resources in creative industry has not been fully tapped resulting in brain drain due to lack of opportunities in local industries. In the consultative workshop outcome held with stakeholders, it was highlighted the importance of good educational and training system will ensure the richness of design value and indispensable of local talent. Proper training and funding of such programme would facilitate local talent to have good design practice as well as developing high cultured creativity - valued by both local and international society, with excellent business skills from product to talents outsourcing. This is a valuable asset to Malaysia and ensures the functional creation industry is at par with the first world nation.

Support for the development of communication design education (theory, practice and research) is also crucial. The combination of vocational and research-based curriculum at school level will help with the creation of a sustainable eco-system for education and training to help nurture local talents within the design industry. One other way to help encourage a comprehensive training for talent is by looking into the global standard in talent grooming within the local educational and training system by standardising education and training into international standard and recognition.

Apart from this, it is equally important to build cluster data based on supportive industry toward creative talent. Professional agencies/bodies can work with the academic institution on

curriculum for functional creation work ready programme. Introduction of program like Industrial Specialist Programme (ISP) at all education and training institution/centre can help with the development of prioritised talents. Coupled with the setting of STI and Creative Centre to help expose and train the talents and giving exposure on gadgets, innovate new application and commercialisation of new products and applications. Professional within the functional creation agencies/body can undertake this centre.

The creation of talent pool organisation via academic and training institution can be organised from these specialist program but the employment of a centralised development plans with special annex to state special needs. The creation of ASEAN Creative talent pool incorporated can identify an International-Malaysian talent pool looking at components like 'finders of people ideas', 'private vehicle as consultants', 'incubator programmes', 'system & strategic plans', 'heroes and stories' and 'evaluation mapping'. This can be further strengthen with the creation of the Ministry of Design, which will decide, plan and work towards a design led economy. This could be achieved by dialogue with several professional bodies and educational institution within the functional creation sector.

It is also important to re-evaluate the importance and support for infrastructure funding to encourage growth for local identity with the functional creation sector. The development and investment on infrastructural and developments for local identities in various user purposes such as educational, and as well as economic provides conducive platform/ecosystem that ensure growth within functional creation and provide incubators and business support to creative SMEs and new entrants. Bodies like EPU (Economic Planning Unit), federal government and state regulator and professional bodies will have to coordinate with ministry of science and technology to create awareness for government grants, facilities, and incentives.

CHAPTER 6 SECTORAL INTERLINKAGES

INTRODUCTION

The Creative Industry forms a backbone for creativity and innovation for many industries. The cross sectoral linkages with Creative Industry are used to enrich the landscape of the other industries.

SUBSECTOR INTERLINKAGES

Functional Creations

The functional creation sector are a specialist sector, however certain disciplines like urban design and architecture cut across sectors. The built environment sub-sector (architecture, urban and interior design) benefits from cross sector collaboration especially with areas like Plastics & Composite which help provide alternative material and constructions, while Heritage and the Arts allows for growth within the conservation of built environment and the promotion of vernacular design via arts and tourism.

Other Functional Creations subsectors like jewellery and fashion works with Tourism, the Arts, and Heritage sector in the promotional, development and conservation of national/local design, usage of materials and with STI pushes the boundaries of its use to a better height. The interlinkages also permit for the technology, skills and knowledge of these subsectors to be exchangeable and transferable.

Graphic design and advertising interlinkages are rather limited as it is a specialist form of discipline. Even though theoretically this subsector is used by industries like automotive and furniture for promotional purposes, technology and skills and knowledge exchanges are currently limited. However the Arts and Media sectors are closely linked to this sub sector.

A summary of the interlinkages is shown in Table 6.1.

Table 6.1 Interlinkages of Functional Creations

Sectors Focus Areas	Furniture	Automotive	Tourism	Plastics & Composites	Creative			
					Heritage	Arts	Media	Functional Creation
T1	/	-	/	/	/	/	-	-
T2	/	-	-	/	-	/	-	-
T3	-	/	/	/	/	/	-	-
T4	-	-	/	/	/	/	-	-
T5	-	-	/	/	/	/	-	-
T6	-	-	-	-	-	/	/	-

Legend

T1	T2	T3	T4	T5	T6
Architecture	Interior Design	Urban Design	Fashion Design	Jewellery Design	Graphic & Advertising

Media

The Media sector is connected to all the other industry sectors in MS 3.0, ie Furniture, Automotive, Tourism, Plastics & Composites, and all other subsectors in the Creative Industry such as Heritage, Arts, Media and Functional Creations. The Media sector serves and is able to be used across sectors and sub-sectors via the `beyond entertainment' application and usage.

The Furniture, Automotive, Tourism and Plastics & Composites industries can utilise the media sector to produce audio visual, publication, and new media products for presentation materials such as marketing show reel, demonstration and training materials, product and services manual and branding and marketing tools.

For other creative sub sectors, the connection can be in two ways whereby Media can be used or can also use the Heritage, Arts and Functional Creations to create products and services. The technology, skills and knowledge can be exchangeable and transferable.

A summary of the interlinkages is shown in Table 6.2.

Table 6.2 Interlinkages between Media focus areas and other sectors

Sectors / Focus Areas	Furniture	Automotive	Tourism	Plastics & Composites	Creative			
					Heritage	Arts	Media	Functional Creation
T1	/	/	/	/	/	/	/	/
T2	/	/	/	/	/	/	/	/
T3	/	/	/	/	/	/	/	/

Legend

Media Focus Areas
Publishing (T1)
New Media (T2)
Audio Visual (T3)

Heritage

Malaysian heritage offers the greatest value to Tourism: Ecotourism, traditional arts, crafts and festivals, museums etc. are the backbone of that industry. Meanwhile, Heritage elements deeply enhance the creative content for the Arts, Media and Functional Creations.

A summary of the interlinkages is shown in Table 6.3.

Table 6.3 Interlinkages between Heritage focus areas and other sectors

Sectors / Focus Areas	Furniture	Automotive	Tourism	Plastics & Composites	Creative			
					Heritage	Arts	Media	Functional Creations
Museums			/			/	/	/
Traditional Arts & Crafts	/		/			/	/	/

The Arts

The Arts provide the basis for the branding and identity of Malaysia. The value they add to other industries, in particular the Tourism industry, has been grossly neglected and needs to be redressed.

A summary of the interlinkages is shown in Table 6.4.

Table 6.4 Interlinkages between the Arts focus areas and other sectors

Sectors / Focus Areas	Furniture	Automotive	Tourism	Plastics & Composites	Creative			
					Heritage	Arts	Media	Functional Creations
Visual Arts	⁄	⁄	⁄	⁄	⁄		⁄	⁄
Performing Arts			⁄		⁄		⁄	⁄

CHAPTER 7 STRATEGIES AND RECOMMENDATIONS

OVERARCHING RECOMMENDATION

The most difficult challenge facing the Creative Industry of Malaysia is its fragmentation. Although Ministers and Ministries from time to time refer to a 'Creative Industry' there is no agreement on what it comprises. A Policy promulgated and launched in 2012 has no traction and industry players in general face issues of bureaucracy, lack of coordination, suspicion and mistrust and a general perception that the components of the industry are being sidelined from the national development agenda.

Currently, various entities have jurisdiction over or interest in several aspects of the Creative Industry as seen in Figure 7.1. Government involvement in the Industry Supply Value Chain is currently disjointed as demonstrated in Figure 7.2. Some of the missed opportunities due to this are outlined in Figure 7.3.

Figure 7.1. Government entities involved in the national Creative Industry landscape

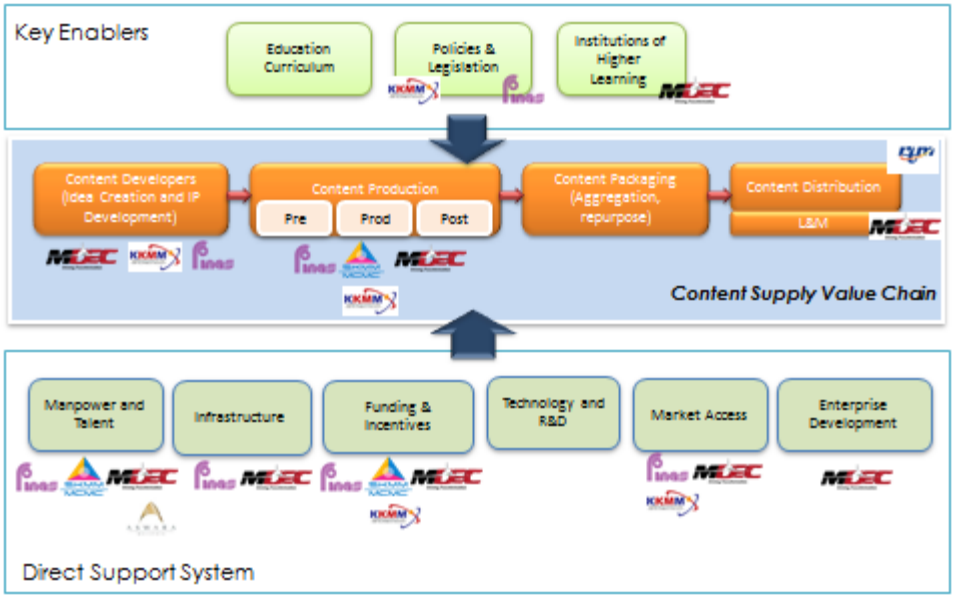

Figure 7.2. Government involvement in the Creative Industry Supply Value Chain

Figure 7.3. Opportunites missed in the current scenario of governance of the Creative Industry

To overcome this problem it is proposed that the government set up a centralised Promotional Body for the Creative Industry designed to integrate the core strength of the Creative fields, to build a comprehensive supporting system for these fields and to promote the development of the Creative Industry. It is important that the Body looks into what currently impedes the industry eg over-regulation. The objectives of such a body are shown in Box 7.1. To achieve these objectives, the entities/stakeholders need to be realigned according to functions. The realignments are shown in Figure 7.4.

Box 7.1

Objectives of the centralised Promotional Body for the Creative Industry

a. Implement the Creative Industry's strategic direction to ensure it is **synchronized** and at the same time not over-regulated**;**
b. **Remove overlaps** in function and funding;
c. M**onitoring** incentives/development initiatives and growth of the industry;
d. **Become a single point of contact** for potential investors; and
e. **Promote and market** Creative Industry products.

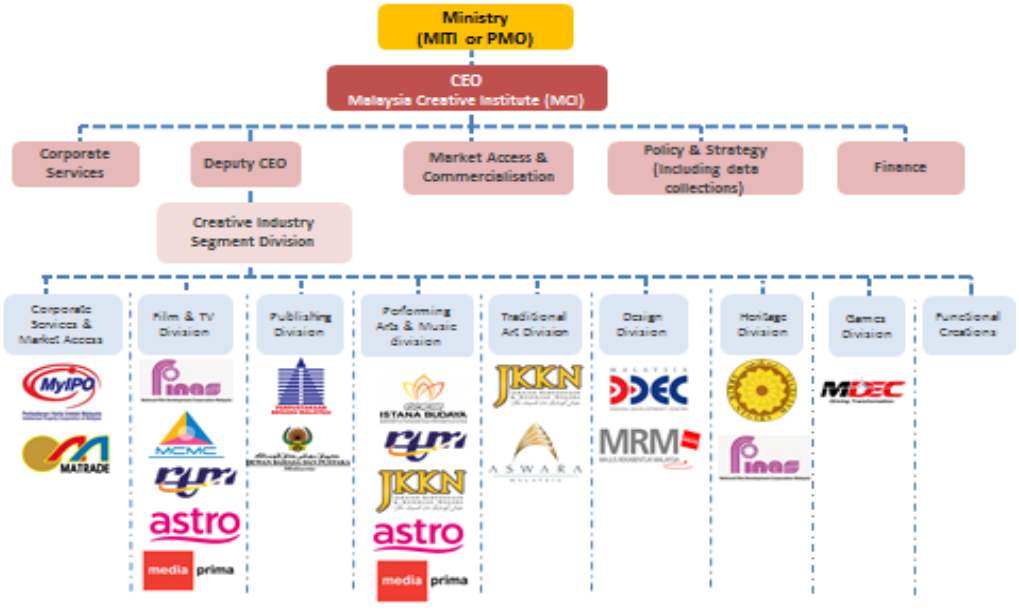

Figure 7.4. Realignment of entities in the new centralised Promotional Body for the Creative Industry

These proposals need to be refined through inclusive and comprehensive stakeholder engagements that take into account concerns of the industry players. It is expected that the establishment of the centralised Promotional Body for the Creative Industry would involve reviews of and amendments to various national regulations, Acts and policies.

SUBSECTOR STRATEGIES AND RECOMMENDATIONS

Functional Creations

A summary of the proposed strategies and recommendations is shown in Table 7.1.

Table 7.1 Proposed strategies and recommendations for Functional Creations sub-sector

Categories	Findings	Strategies	Recommendation	Actors
Challenges	Lack of infrastructure to support positive growth for local content with the functional creation sector	Re-evaluating the importance and support for infrastructure encourage growth for local identity with the functional creation sector	Develop and invest in infrastructural and developments for local identity in various purposes such as educational, as well as economic	State Government Dev. Corp. Federal Government EPU
	Local Functional Creations are not given equal recognition by local institution as compared to their international counterparts	Use global standards in talent grooming within the local educational and training system	Standardise education and training according to international standard and certification	Federal & State Government Dev. Corp. Government bodies EPU , KPT, Academic Institutions PAM/ LAM
	The lack of a central agency that supports common good practice and ethical framework within the Functional Creations professionals	Dialogue with several professional bodies and educational institutions within the Functional Creations sector	The creation of a centralised Promotional Body which will decide, plan and work towards a design-led economy Create awareness for government grants, facilities, incentives	EPU Academic Institutions PAM/ LAM MRM MIID WREGA
	Lack of a good ecosystem to support the growth of the Creative Industry	Identify conducive platform/ecosystem which ensure growth within functional creation	Provide incubators and business support to creative SMEs and new entrants	EPU Professional Bodies
Governance	The need for dynamic, complex process of	Employ evolving and responsive process geared	Annual review of decision making between concerned	EPU

Categories	Findings	Strategies	Recommendation	Actors
	interactive decision-making	towards success	agencies to ensure accountability	Professional bodies
	Lack of a sound governance geared towards common policies	Government agencies and stakeholder to discuss on a wholesome policy	Creation of policy based upon new consumption patterns and identities of a global influence and employment of good practice	EPU Federal Government
	There is a need for a more focused and targeted policy and strategic plans for various sub sectors in Functional Creations	State and Federal Government agencies to define focused and targeted policy	Autonomy for the Creative Industry to decide receptive policy plans	EPU Federal & State Government regulator
	Functional Creation sector needs government support in developing conducive design environment instead of controlling it.	Lifting of restriction that impede on the industry	Deregulation of national cultural and design policy frameworks, which promotes cultural trade	EPU Federal & State Government regulator
Coordination & Collaboration	Lack of inclusiveness of Central government's developmental plan for the industry	Discussion between State governments and Federal government	Employment of a centralised development plans with special annexe to state special needs Create awareness for government grants, facilities, incentives	State Government Federal government EPU Professional Bodies
	Diverse views on which drivers are high impact and high uncertainty	Identify and categorise common issues which are important but yet deemed irrelevant	Develop prioritised talents, Finders of People Ideas, Private Vehicle as consultants, Incubator Programmes, System & strategic plans, Heroes and stories, Evaluation mapping	EPU State Government Federal government
STI Implications	Insufficient incorporation in products, services and experiences of new technologies	Exposure on gadgets, innovate new application and commercialisation of new products and applications.	Establish STI and Creative Centre to expose and train. This centre will be managed by professionals	ASM Ministry of Science &Technology
	Technological investment and revolutions which can help fuel the thirst and demand for creative products	Injection of national budget for STI in creative industry	Tax incentive to encourage public & private industries financial support technological investment	Ministry of Science &Technology EPU
	Incorporation of science and technology within the functional creation sector	Show-casing of potential for robust economic growth and demand	Annual STI and Creative Industry road-show	Federal Government EPU MOSTI

Capacity building and/Talent Development	Lack of holistic education and training system that includes creativity	Support the development of communication design education (theory, practice and research)	Combination of vocational and research based curriculum at school level	Academic institution MOHE KPT
	The potential of local talent and resources in creative industry has not been fully tapped resulting in brain drain due to lack of opportunities in local industries	Build cluster data based on supportive industry toward creative talent	Professional agencies/bodies to work with the academic institution on curriculum for functional creation work ready programme	MIID PAM/LAM MRM WREGA Academic institution MOHE KPT
	Shortage of skill and talented workers for design	Creation of talent pool organisation via academic and training institution	ASEAN Creative talent pool incorporated: International-Malaysian talent pool	Talent Corp Academic institution
	The potential of local talent and resources in creative industry has not been fully tapped	Creating and sustaining eco-system such as education and training, environmental education, nurturing talents within the design industry	Industrial Specialist Programme (ISP) at all education and training institution/centre	Talent Corp Academic institution MOHE

Media

Summaries of the strategies and recommendations are given in Tables 7.2, 7.3, 7.4, 7.5 and 7.6.

(a) Media Challenges

Table 7.2 Strategies and Recommendation for Challenges for Media Subsector

No.	Strategies	Recommendation	Actors
1.	To provide top-of-the-line network that is inclusive and extensive	To upgrade services to top international level standards	MDEC KKMM MIMOS MCMC
2.	To support inclusive development nationwide	To create a more inclusive policy to support the whole country and sub-sector's development Promote dynamism and creative clusters in various cities nationwide to benefit from linkages and knowledge spill-over.	KKMM MDEC States government MOTAC City Hall Local Arts Groups
3.	Government to change role from controlling to supporting agent for innovation Promote transparency and objectivity in censorship processes and mechanisms	Greater dialogue between censorship entities and creative groups and promote public debate Deregulate industry, increase public service	KDN MCMC KKMM MDEC FINAS

No.	Strategies	Recommendation	Actors
4.	To increase the local content uptake and to create domestic consumer base	Create staggered quota requirement for foreign content screening in local media platforms to protect the interest of local content and cultural producers Need a viable production policy	KKMM MCMC MDEC TV stations Telcos
5.	Create local market by promoting local content in the country Create global market by promoting local content internationally	To create better products and services Increase orientation towards export markets in order to realize scale economies and the benefits of agglomeration or clustering To provide branding and marketing support/ funds for export and exhibit of local content in global market	KKMM MDEC FINAS Matrade
6.	Create incentives for local and global investors to invest in local creative industries	Facilitate access to finance for new and small producers and ensure access to capital for creative content. Provide incubators and business support to creative SMEs and new entrants, and assist them with access to global distribution networks To provide tax rebate incentive for FDI and creative production projects to Malaysia	MDEC Magic SME Corp Finas MOF
7.	Reform the funding mechanism for creative industry from government driven to corporate driven funds	To recommend Japanese `Mesena' concept into the funding support system in Malaysia. Corporate support for the arts and creative without expecting short term benefits such as contribution to sales and brand recognition. This concept is supported by a special association which is called `The Association for Corporate Support of the Arts'.	KKMM MOF MIDA MDEC

(b) Media Governance/ Institutional Framework

Table 7.3 Strategies and Recommendation for Governance/ Institutional Framework for Media Sector

No.	Strategies	Recommendation	Actors
1.	Need for coherence in policies (Need to know which door to knock)	To create coherent, comprehensive, targeted and inclusive policies	KKMM States Government
		Deregulation of national cultural and media policy framework which promotes cultural trade	KKMM Matrade MITI MOF
2.	Implement quotas for broadcasting and telcos	Create staggered quota requirement for foreign content screening in local media platforms to protect the interest of local content and cultural producers. Minimum local content stipulation for licenses should be leveraged to ensure favourable market for local companies to avoid extravagant margins imposed by telcos for Direct Customer Billing burdensome for content providers, and stifling ability to penetrate local market	MCMC KKMM

(c) Media Co-ordinations and Collaborations

Table 7.4 Strategies and Recommendation for Co-ordinations and Collaboration for Media Sector

No.	Strategies	Recommendation	Actors
1.	Interstate and State-Federal collaboration required	Establishment of coordination mechanisms at Federal level Create awareness for government grants, facilities, incentives	KKMM Finas MDEC States Government
2.		Adopt strategic trade policies to boost international collaboration for creative industry. Explore strategies to link with more advances economies for production and distribution of local product and services. Make SEA especially China as the future strategic partner for creative economy.	KKMM MDEC
3.		Promote dynamism and creative clusters in cities to benefit from linkages and knowledge spill-overs. This can be done internally (Malaysia) and linkages to international major cities. Increase collaboration between companies from different countries in order to market cultural content more efficiently or to invent a new hybrid popular culture and media related commodities that can be marketed both inside and outside this region.	KKMM States Government Matrade Consulate office MDEC

(d) Media S&T Implications/ R & D Area

Table 7.5 Strategies and Recommendation for S&T Implications/R&D Area for Media Sector

No.	Strategies	Recommendation	Actors
1.	To promote and increase knowledge of local industry players in new creative industry trends and drivers	Industry players to increase knowledge of and partake in future trends such as Internet of Things (IoT), Big data, Transmedia approach (telling stories across multiple platforms and formats using digital technologies), (AR/VR/Social Media) Multisensory experiences and etc. Make use of university research To set up S & T Innovation and Creative R & D Centre. This center will be undertaken by three major parties namely IHLs, Government and Companies/ Industry. Companies can conduct test on gadgets, innovate new application and commercialization of new products and applications.	MDEC KKMM MCMC MIMOS MOHE MAGIC

(e) Media Capacity building/Talent Development

Table 7.6 Strategies and Recommendation for Capacity Building/Talent Development for Media Subsector

No.	Strategies	Recommendation	Actors
1.	Need for holistic education that combines Science, Innovation and creativity Create jobs for creative talent To provide training and apprenticeships	To revamp the current education system to combined STI and Creative elements The need for a new paradigm to bring science, art and technology together to create optimal synergies To renew focus on tertiary education to promote skills, innovation and the quality of human capital To fund /incentivise Creative industry for products, services and experiences To provide incentives for training of new talent	MOE MOHE Talent Corp Mampu KKMM MDEC Finas
	To renew focus on tertiary education to promote skills, innovation and the quality of human capital		MOHE KKMM MDEC Finas
	Build a strong storytelling foundation/ skills for new generation of creative talent	To include storytelling skills from primary school to university level.	MOE KKMM Finas MDEC

The short, medium, long term actions to be taken are shown in Table 7.7.

Table 7.7 Recommendations for Media Sub-Sector

Short-Term (2016-2020)	Medium-Term (2021-2035)	Long-Term (2035-2050)
Create awareness for government grants, facilities, incentives	Deregulate industry, increase public service	Adopt strategic trade policies to boost international collaboration for creative industry. Explore strategies to link with more advances economies for production and distribution of local product and services. Make SEA especially China as the future strategic partner for creative economy.
Create staggered quota requirement for foreign content screening in local media platforms to protect the interest of local content and cultural producers.	Deregulation of national cultural and media policy frameworks, which promotes cultural trade	The need for a new paradigm to bring science, art and technology together to create optimal synergies
Extravagant margins imposed by telcos	Establishment of coordination	To include storytelling skills from

Short-Term (2016-2020)	Medium-Term (2021-2035)	Long-Term (2035-2050)
for Direct Customer Billing burdensome for content providers, and stifling ability to penetrate local market. Therefore minimum local content stipulation for licenses can be leveraged to ensure favourable market for local companies.	mechanisms at Federal level	primary school to university level.
Facilitate access to finance for new and small producers and ensure access to capital for creative content.	Increase orientation towards export markets in order to realize scale economies and the benefits of agglomeration or clustering	To revamp the current education system to combined STI and Creative elements
Greater dialogue between censorship entities and creative groups and promote public debate	Industry players to increase knowledge of and partake in future trends such as Internet of Things (IoT), Big data, Transmedia approach (telling stories across multiple platforms and formats using digital technologies), (AR/VR/Social Media) Multisensory experiences and etc.	
Make use of university research	Promote dynamism and creative clusters in various cities nationwide to benefit from linkages and knowledge spill-over.	
Need a viable production policy	Provide incubators and business support to creative SMEs and new entrants, and assist them with access to global distribution networks	
To create a more inclusive policy to support the whole country and sub-sector's development	To create better products and services	
To create coherent, comprehensive, targeted and inclusive policies	To provide tax rebate incentive for FDI and creative production projects to Malaysia	
To fund /incentivise Creative industry for products, services and experiences	To recommend Japanese `Mesena' concept into the funding support system in Malaysia. Corporate support for the arts and creative without expecting short term benefits such as contribution to sales and brand recognition. This concept is supported by a special association which is called `The Association for Corporate	

Short-Term (2016-2020)	Medium-Term (2021-2035)	Long-Term (2035-2050)
	Support of the Arts'.	
To provide branding and marketing support/ funds for export and exhibit of local content in global market	To renew focus on tertiary education to promote skills, innovation and the quality of human capital	
To provide incentives for training of new talent	To set up S & T Innovation and Creative R & D Centre. This centre will be undertaken by three major parties namely IHLs, Government and Companies/ Industry. Companies can conduct test on gadgets, innovate new application and commercialization of new products and applications.	
	To upgrade services to top international level standards	

A summary of the findings, strategies and recommendations for film industry is shown in Table 7.8. The table of participants in Creative Industry Sector's Teh Tarik Talk Series (V) on the Future of Films is in Appendix 11.

Table 7.8 Findings, Strategy and Recommendation for film industry

Category	Finding	Strategies	Recommendations	Actors
Coordination and Collaboration	Local film-makers need more entities to financially support them in this industry	To collaborate with other entities for financial fund support	To connect film industry with other industries in order to gain better financial support and to avoid monopoly by certain film-makers only To involve corporate bodies to fund film production	FINAS Corporate Bodies
Capacity Building / Talent Development	Students' involvement in creative activities is reduced after primary school due to homework workloads	To balance homework with creative activities	Reduce homework and incorporate more creative activities in curriculum assessments	MOE and MOHE
S&T Implications	Cinema experience will become premium	To promote 'Communal Experience' in cinemas	Film industry players to utilize more technologies	FINAS

Category	Finding	Strategies	Recommendations	Actors
	in the future despite multi-screens (TV, PC, Laptop, Tablet and smartphones) and Virtual Reality R&D is important for script development, delivery and distribution mechanism and technologyies used in film industry		such as robotics and 360-degree camera to enhance the "Communal Experience" for cinema-goers	Cinemas Industry Players
Challenges	Local films are lacking of intelligent content behind the messaging	To produce more local films that are critical and contain education-based value	To set a number of critical films to be produced in a year	FINAS Industry Players
			Provide specific allocation for the established local film-makers and young talents who produce various genre films	Ministry of Home Affairs LPF
	Issue of content available online eg pornography and online piracy	To strategise with relevant Ministries and bodies in order to control content streaming and theft online		FINAS KKMM MDeC

Heritage

A summary of the findings, strategies and recommendations based on stakeholder engagement is shown in Tables 7.9 and 7.10.

i. Galleries. Libraries, Archives, Museums (GLAM)

Table 7.9 Findings, Strategy and Recommendation for GLAM (Heritage Subsector)

Category	Findings	Strategy	Recommendation	Actors
Coordination and Collaboration	There is a complete disengagement between museums and other groups	To create more engagement between various groups	MOTAC to organize a GLAM Symposium	MOTAC Private Sectors
Capacity Building / Talent Development	GLAM is not an important component of formal and informal education	To take full advantage of GLAM to be incorporated in education system.	Visits to GLAM to be made an aspect of the school education syllabus	MOE MOHE MOTAC
Outreach	Very few Malaysians visit local GLAM	To promote GLAM in media	To increase GLAM's budget for promotion	MOTAC Private Sectors
S&T Implications	Big Data can be presented using current technology Disruptive technologies will leave large impact Need to develop the field of Heritage Science	To change existing business model to incorporate impacts of disruptive technologies To create awareness and build capacities and capabilities in Heritage Science	The use of technology in museums and in the educational sector through: • Virtual reality •Mobile Internet technology (Everyone has access all the time) •Cloud tech (To store archives and parts of a virtual museum) •3D&4D printing (modeling and reconstructing objects) •Application of technology to teach the values of our heritage Establish Heritage Science as a field in Malaysia	MOSTI MOHE MOTAC Private Sectors
Challenges	There is a pressing need for scientific literacy	GLAM can be used to promote scientific literacy	Link GLAM substantive aspects to school, vocational and tertiary institutes.	MOTAC MOSTI Private Sectors
	There is no Museum of Natural History	To understand, preserve and interpret biological and physical diversity of Malaysia through exhibition, workshops etc.	To establish the Museum of Natural History To rebrand and reintroduce the concept of Malaysian Natural History	MOTAC

ii. Traditional Arts and Crafts

A summary of findings, strategies and recommendations ensuing from stakeholder engagement is shown in Table 7.10.

Table 7.10 Findings, Strategy and Recommendation for Traditional Arts and Crafts (Heritage Subsector)

Category	Findings	Strategy	Recommendation	Actors
Coordination and Collaboration	Lack of interdisciplinary interaction between craftsmen	Artisans to collaborate with other entities	Engagement with non-traditional partners (e.g. Royal Selangor Pewter collaborated with Victoria and Albert Museum ; *batik* design on wearables)	
Capacity Building / Talent Development	In the Pewter Industry, it has been identified that School Leavers are interested in pursuing careers in craft. On the other hand, there is a lack of interest of young people for the *batik* industry	Increase exposure of young people to traditional arts and crafts Train young people : • Using new technology like 3D printers and Computer Numerical Control (CNC) routers • Perpetuate the craft to keep it relevant Incorporate skills development in the academic curriculum	Use social media to raise awareness about crafts Include arts and crafts in living skills syllabus	
S&T Implications	Low awareness and utilization of latest technologies	To use latest technologies as sources of improvement and innovation in processes, materials and products	Promote collaboration between artisans and technology developers Provide funding for research	SIRIM MOSTI
Challenges	Inavailability of materials for mass production (such as wood)	Use of alternative materials	Promote interactions between artisans and technology developers	FRIM MOSTI SIRIM
	Lack of standardization for export purposes	R&D required for maintaining standard (e.g. SIRIM)	Make R&D of arts and crafts as priority for research grants	
	Copyright infringement rampant	To assimilate technical advancement in promoting, not just preserving, IPR	To use technology in creating craft marks/trademarks	

The Arts

A summary of the findings, strategies and recommendations is shown in Table 7.11.

Table 7.11 Findings, Strategy and Recommendation for the Arts Sub-Sector

Category	Findings	Strategy	Recommendation	Actors
Coordination and collaboration	There is no one-stop-agency on Creative Industry in Malaysia	Back-to-basics, redefining content and empowering the agency	To set up an agency (like KOCCA) responsible for Media, Functional Creations, Heritage and the Arts via production support, marketing and promotion, global expansion abroad, human capital development, and cultural technology implementation.	FINAS ++ (Content Malaysia) MOTAC KKMK The Industry Players
	Malaysia does not have a main authority for the Arts due to disengagement between relevant Ministries (MOE, MOTAC and MOF) to improve the state of the Arts in Malaysia	Collaboration among Ministries, NGOs and companies	To set up National Arts Council	MOE MOTAC FINAS++ -to set up NAC
	Grossly undervalued in Tourism industry	To enhance the institutional bridge between the Arts and Tourism	Greater dialogue between the Arts and Tourism sector	MOTAC MITI
Capacity Building/ Talent Development	Capacity building for the Arts is not a priority	To enhance the capacity building of the Arts	More training centres to be established , private or public institutions To revise curriculum and syllabus to incorporate STEAMD (Science, Technology, Engineering, Arts, Mathematics, Design) Build solid knowledge base: -Sponsor local talents to gain experience internationally -bring in international collaborations and artists to enable knowledge transfer	MOSTI MOE MOHE
Outreach	To enhance opportunities in and exposure to Creative Industry	To enhance public outreach	To organize collaborative outreach programs for students and public particularly on economic potential of the Arts in rural areas (e.g. acting as a medium to encourage using English	Ministries , Agencies, private sectors and NGOs (E.g. MoE to collaboratewith PEMANDU and private companies such as Enfiniti Vision Media Sdn Bhd)

	Malaysian society generally not interested in the Arts	To raise awareness and interest among Malaysians about the Arts To expose students to the Arts at early age Enabling as many Malaysians to experience live performances (e.g. Penang Arts Festival) Passionate individuals should be empowered	Through informal education such as weekend family trip to Arts centres Make tickets affordable for all Malaysians (e.g. no GST and subsidized pricing) Continually fresh and wide offering catering to different segments (e.g. musicals, drama, children, cultural etc.)	
S&T Implications	Limited use of latest technologies due to lack of awareness and funding Research on the trends affecting the Arts neglected	To create awareness of latest technologies to creations of products, experiences and services Research on arts technology related issues should be initiated	Close interactions between Creative Industry players and technology developers Funding for R&D on technologies for the Arts should be given priority	Agensi Inovasi Malaysia (AIM) MOSTI Industry players MOSTI MOHE MOTAC
Challenges	Political and religious groups pressure eg censorship, impacting the Malaysian Creative Industry	To make censorship more objective, consistent and transparent To create a future generation of thinkers with exposure to the Arts	To organize regular engagements between religious and the Arts groups To go towards rating, classification	KDN (Film Censorship Board) FINAS MOTAC
	Lack of fund to support, maintain and incorporate technologies for the Arts by the Government	To expand sponsorship	To approach NGOs and Corporate bodies (CSR) for support Allowing fund raising specifically for the Arts	
	Difficulty for the Malaysian creative content to be exported due to its quality (content and method etc.)	To market , distribute and brand our local content more effectively	To set up an agency like KOCCA To set up National Arts Council	

CHAPTER 8 ROADMAPS

INTRODUCTION

To deal with the overarching problem of the lack of integration in the Creative Industry, stakeholders have strongly recommended an imperative for the nation: the establishment of a centralised Promotional Body of the Creative Industry.

Roadmaps for each subsector are proposed based on the strategies and recommendation formulated.

SUBSECTOR ROADMAPS

Functional Creations

Table 8.1 Roadmap for Functional Creations sub-sector

Short-Term (2016-2020)	Medium-Term (2021-2035)	Long-Term (2036-2050)
Architecture **Short Term:** Developing of built-in environments for higher social activities and public purposes in less developed states.	**Medium Term**: Re-evaluating the importance and support for heritage buildings preservation guideline in order to increase and encourage the government-owned collaboration tendency – collaboration with UNESCO, PAM, LAM. To increase the green-architecture implementations and awareness among property developers.	**Long Term:** To increase the training and development of talent within the architecture industry – allowing for a sustain future of architecture design identity and practice.
Investment in public amenities, infrastructural and architectural developments in varies of user purposes such as educational, recreational, and residential as well as business centers. In some states with heritage background such public expectation to preserve and escalate the status of heritage sites and buildings to achieve or keep the UNESCO heritage status as a major business driver of the	A clear system of governance within the architecture industry to include continuous training and talent development, a robust educational system and the constant employment of standard code of conduct within the industry.	Guidelines for future buildings and property developments in terms of, saving energy and less waste, producing clean energy from solar resources or wind generators. Smart consumption of water and electricity by using censored water tabs and censored electric switches and motion detectors etc

Short-Term (2016-2020)	Medium-Term (2021-2035)	Long-Term (2036-2050)
local businesses and similar oriented factors.		
Urban Design **Short Term:** Review existing urban design development of cities- how the infrastructure or the lack of will influence the development of good talent and create a conducive environment for creativity such as the "creative city" concept. Rural state constant development of urban infrastructures. Immediate incremental implementation of roads, system, bridges, tunnels, protecting reserved resources, business zones, residential, museum, libraries and other public facilities as a trustworthy foundation for the future.	**Medium Term**: A talented rural society needs sufficient urban outreach to contribute to the outcome and share the benefits with urban societies, hence employ a smart urban design facilitates equal services and resources to empower the social activities. Create a body to monitor the effect and impact of urban design on talent development and economic growth. Identify the potential of midterm urban development in the local design industries and its capability to generate specific economic return.	**Long Term:** Include STI in the development of modern and a smart urban design which allow for smart communities to flourish The creation and development of a robust local tourist spots in accordance with urban development can inspire the regional business perspective of whole state and encourages better urban design for the locals.
Interior Design **Short Term:** Identify the issues pertaining to Malaysian designer breaking into global interior design industry and related matters like jurisdiction of design between architects and interior designer, vernacular design identity and the practice standard. Immediate research study must be conducted to uncover issues and problem and also the strength and specialty of the interior design industry in the country.	**Medium Term**: Professional agencies/bodies to work with the academic institution on curriculum for interior design- local talent with international capabilities To employ specific remedies i.e. curriculum, instil of local identity, in the design, branding of home-grown talent pool from the study and improve support for the interior design industry	**Long Term:** To include other sectors in the development of a sustainable interior design industry (furniture, materials, non creative industry, etc) Interior design sector is able to be employed within the diverse industry (creative or non creative). This will widen the scope of this design sector and increase the need of such talent.
Jewellery **Short Term:** Supporting the local jewelry designers by conducting extensive researches on the field can amplify the uniqueness of traditional designs. Malaysia jewellery industry must identify global trend and demand	**Medium Term**: To recognise and distinguish the capabilities of the jewelry design talent and promote the quality of Malaysia design through branding The employment of STI within the jewelry design industry assist within the training of new method, style, material and design trend in accordance to the global market and re-introduce smart	**Long Term:** Include the use of new design material and techniques by employing STI into the jewellery design industry. Working with the centralised Promotional Body to ensure competitiveness of Malaysian jewellery design within the global design arena.

Short-Term (2016-2020)	Medium-Term (2021-2035)	Long-Term (2036-2050)
	wear technology within the industry for specific niche areas.	
Fashion Design **Short Term:** Review existing fashion design industry, the niche areas within the industry and its contribution to the GDP of the country Agency like Kraftangan Malaysia and academic institutions in Malaysia must identify through research the niche fashion design areas, new trend and techniques within the fashion industry in Malaysia and globally.	**Medium Term**: To recognise and distinguish the capabilities of different states, rural cultures and resources to generate a solid foundation of fashion industry for world of Islam and higher achievements. Malaysia as a well-known country in the Islamic world can be the fashion hub of the Islamic world. Inviting the talents and branding the prominent outcome of this society can make Malaysia the first and most reliable fashion lead of Islamic world for a billion persons market around the globe.	**Long Term:** Invest on branding of local talent and local design internationally. Consistent upgrading of facilities and amenities within the fashion design industries to allow for substantial growth in the local fashion talent and businesses.
Graphic & Advertising Design **Short Term:** Review existing graphic design industry and identify the issues and existing practice- recognition from the industries and government bodies, the lack of local professional body championing the industry and issues within the talent appreciation Bodies like MRM, PAM, LAM and WREGA consolidated to take charge of design industries and are involved with the academic curriculum and acknowledgement.	**Medium Term**: The graphic design and advertising industry in Malaysia to look into the creation of world known brands to empower the major local business and relate industries. The creation of foundation and eco-system for generating world-known brands. Identify competent production entities and allocating more sufficient funds for the design industry talents toward global achievements	**Long Term:** The governance of the graphic design & advertising industry to the practitioner within the industry and allow for design-led branding. The creation of a centralised Promotional Body that will decide, plan and work towards a design led economy.

The projections for the Functional Creations subsector according to short, medium and long terms are shown in Figures 8.1 to 8.4.

Figure 8.1 Projections of Functional Creations 2015 - 2020

Figure 8.2 Projections of Functional Creations 2020 - 2030

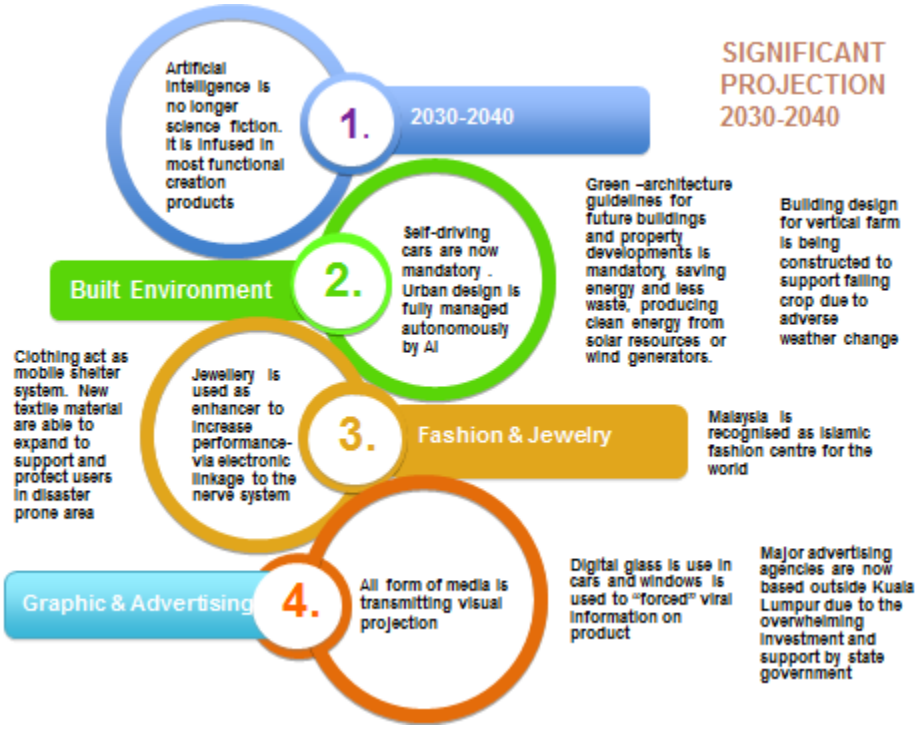

Figure 8.3 Projections of Functional Creations 2030 - 2040

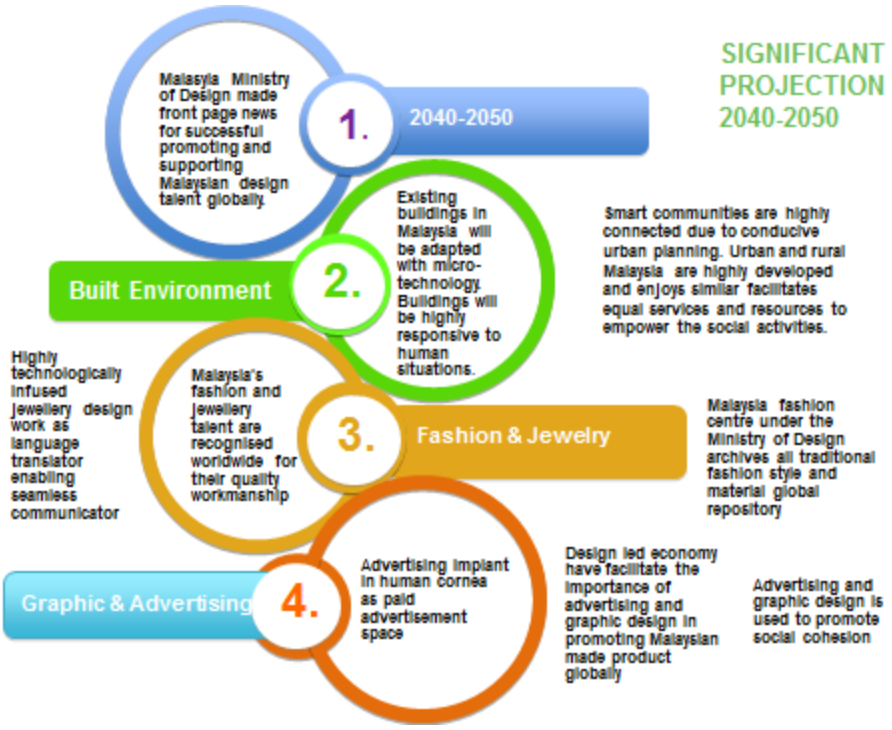

Figure 8.4 Projections of Functional Creations 2040 - 2050

Media

The roadmap for the Media subsector is shown in Table 8.3.

Table 8.3 Roadmap for Media Sub-sector

Short Term (2016-2020)	Medium Term (2021-2035)	Long Term (2035-2050)
• On-demand (the new norm) • Reskilling the current workforce (upskilling) • Education becomes accessible & open • Open, accessible, high-quality education • Progressive tax rate incentives for companies • STIC Education convergence • Train talent • Outsource to Learn from Others • Expand worldwide	• Reduction in bureaucracy • Government policies align • Screen is personalized • IP that generates income (private money) • Implementation of content regulation • Successful exits for investment • Malaysia companies acquiring foreign IP / Corp • Create own IP • Exposure to international markets • Collaboration with foreign entities	• Top quality education from primary to tertiary producing talent • Education system revamped with focus given to creativity in arts • Top IPs generating global relevance + revenue • Strong STIC capacity to support creativity • Tax initiatives for corporation to contribute to creative industry • World class talent attracted to Malaysia • FDI for the region focuses in Malaysia • Investment from private sector • Malaysia is trend setter • SEA market penetration • Africa + Europe penetration

The milestones that Media subsector must achieve are shown in Table 8.3.

Table 8.3 Milestones for Media subsector

Year	Trends/ Milestones
2016- 2020	1. More personalised, mobile-optimised and accessible content made available. 2. Electronic transmission drives the content delivery 3. Access to content via mobile gadgets 4. All content is interactive 5. Gamification concept drives the content industry 6. Start of mobile interactivity features for content access 7. Seamless content sharing and distribution between devices such as computers, tablets, smartphones and TV. 8. Users / viewers self-curated and customised content 9. Virtual reality designed games 10. Algorithms used in content curation based on audience interests and most recent behavior. Using algorithms to repackage and syndicate different versions to different devices depending on user's needs.
2021-2030	1. Fully immersive media content using VR & AI technology 2. Obsolete of broadcasting and monopoly of narrowcasting 3. Games technologies driving the other content sectors 4. Access to all content via cloud 5. OTT based content consumption 6. Access content on the move, everywhere and anywhere. 7. Mature convergence of wearables, IoT and content apps and viewing experiences 8. Creative technology fully capitalize power of wireless networks
2031-2040	1. VR replace screens (TV, tablet, portables) 2. Life Show/ concert/ musical content using VR, AI and Holographic concept 3. Cinema direct to home/ movie using satellite transmission to home
2041- 2050	1. Full virtual world changing the media landscape. 2. VR—which immerses the user in a virtual world—and AR—which overlays digital information onto the physical world—totally reshape existing ways of doing things including ways of using and consuming media content

The factors that can affect the implementation of the Media subsector roadmap are the following:

- Rising competition from neighboring countries
- Knowledge amassment
- Threat to personal security
- Tax focus moves from corporate to consumption
- Language barrier removal (through technology)
- Automation taking over jobs
- Key infrastructure (hardware and software)
- MOOC (online delivery of education)
- Media consumption patterns
- Regulations and Politics

Heritage

The roadmap for the Heritage subsector is shown in Table 8.4.

Table 8.4 Roadmap for Heritage Sub-sector

Focus Area	Short Term (2016-2020)	Medium Term (2021-2035)	Long Term (2036-2050)
Galleries, Libraries, Archives and Museums (GLAM)	GLAM symposium to coordinate and share outlook of stakeholder Heritage Science recognized as a field	Visits to GLAM part of school education Funding for Heritage Science research which is an R&D priority Museum of National History established	Full adoption of technologies to enhance sector in terms of ideation, funding, production, marketing,, and distribution
Traditional Arts and Crafts	Active engagement between artisans in terms of materials, design etc Training programme for youth incorporates new technologies e.g. 3D printing	Funding for R&D research on Traditional Arts and Crafts allocated Utilization of new materials (textiles, wearables, advance materials) in Traditional Arts and Crafts	

The Arts

The roadmap for the Arts subsector is shown in Table 8.5.

Table 8.5 Roadmap for the Arts Sub-sector

Short Term (2016-2020)	Medium Term (2021-2035)	Long Term (2036-2050)
Establishment of National Steering Committee of the Arts under MOTAC Establishment of a national development framework which includes talent spotting/grooming for the Arts Training programme for youth incorporates new technologies e.g. hologram, lasers The arts sector recognized as important stakeholder in Tourism industry	Establishment of the National Arts Council and a centralised Promotional Body for the Creative Industry. Funding for R&D on the Arts	Full adoption of technologies to enhance sector in terms of ideation, funding, production, marketing,, and distribution

CHAPTER 9 SUMMARY OF THE WAY FORWARD

Enhancing Creative Industry's Value Proposition

In order to enhance the value creations of the Creative Industry, focus must be placed on offerings that cater for the market needs of the future which match the competitive areas of the Malaysian Creative Industry (Figure 9.1).

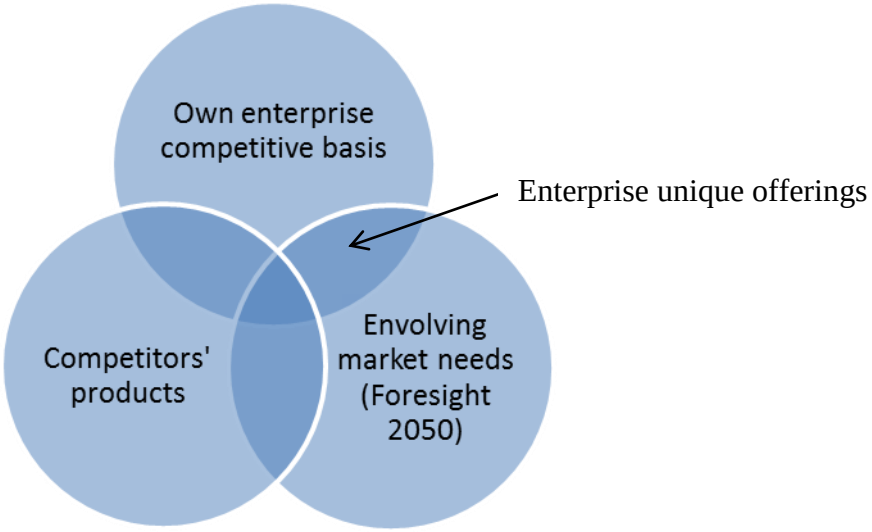

Figure 9.1. Unique offerings that will enhance the Industry's Value Proposition

National Issues/ Challenges

In summary, the national issues and challenges are as follows:

- Non-optimization of national strengths
- Governance overlaps
- Non optimization of adoption of Dasar Industri Kreatif Negara (DIKN)
- Protection of Intellectual Property needs to be intensified
- Data is limited
- Malaysian share of the creative products global market is low
- Lack of awareness of disruptive technologies and strategic responses required
- Training institutes not optimized
- Talent drain is seen as a threat
- Skills to utilize new technologies limited.

Global trends of technologies

In addition to these issues and challenges, the country should be cognizant of advancements in technologies at the global level. Going towards 2050, these changes are as follows:

2020-2030
Holographic TV mainstreamed
3D printed clothes
Digital technologies and smart materials for clothes
8K resolution TV

2030-2040
Death of cinema screens
Personalized marketing
All television becoming internet based
Newspapers no longer printed
Intelligent ethical advertising
Holographic wall screens
Full immersion virtual reality
Experiential consumption becomes a premium

2040-2050
Robots common features of home and work place
Hi-tech intelligent buildings revolutionize urban landscape
Artificial Intelligence (AI) creates content

Recommendations

The main recommendations are as follows:

(i) Establish a centralized Promotional Body of the Creative Industry to:
   (a) Act as a one-stop centre for licensing
   (b) Formulate strategies and action plans
   (c) Monitor advancements in technologies affecting the industry
   (d) Identify industry priorities
   (e) Expand activities to promote internationalization
   (f) Establish incentives and
   (g) Strengthen synergies between different components of the industry

(ii) Prioritize talent development that is in line with the trends of new technologies through the establishment of an STI and Creative Centre

(iii) Establish infrastructure and ecosystem that supports industry's capacity and capability to assimilate new technologies

(iv) Make data collection on the industry mandatory

Roadmap

To solve the problems and rise to the challenges, the following roadmap is proposed according to Governance and Institutions, Industry positioning, Talent development, STI Impact on Creative Industry and R&D Focus Areas. Furthermore, the actions are grouped according to three decades (short term 2020-2030; medium term 2030-2040; long term 2040-2050).

Short Term

Governance and Institutions

- Update national policy DIKN to match current trends
- Establish National Promotional Body for CI
- Foster and protect Intellectual Property Rights (IPR)
- Invest in next-generation broadband
- Invest in talent development
- Invest in CI products and services

Industry positioning

- Industry incorporates AR/ VR, multisensory experience etc into their products
- Malaysia CI professionals further expand their international reach

Talent development

- Retrain current work force
- Develop entrepreneurships
- Build skills to meet demand of digital creative sectors

STI Impact on Creative Industry

- Digitalization of production, dissemination and consumption of creative products

R&D Focus Areas

- IPR disruptions due to new technologies
- Use of virtual reality (VR) and augmented reality (AR) in production

Medium Term

Governance and Institutions

- Establish National Arts Council
- Collection of data mandatory
- Support creative clusters
- Create incentives for Industry
- Establish green architecture guidelines for building and property development
- Malaysia National History Museum established

Industry positioning

- Malaysia CI entrepreneurs proliferate
- Malaysia becomes international Islamic fashion hub
- Malaysia becomes supplier of choice of biodiversity footage

Talent development

- Turn talent into jobs through training and incentives
- Establish training and R&D institutes for the Creative Industry
- Increase apprenticeships, mentorships and higher education programmes

STI Impact on Creative Industry

- Use of new technologies in creative products
- Internet as future focus of creative content consumption

R&D Focus Areas

- Identification and development of statistical indicators for data collection
- Use of VR and AR in production of creative content

Long Term

Governance and Institutions

- Continuous investment in talent development
- Continuous international promotion of Malaysia CI

- Malaysia hosts ASEAN Heritage Science Centre
- Full adoption of advanced technologies by Galleries, Libraries, Archives and Museums (GLAM); Traditional Arts and Crafts

Industry positioning

- Continuous assimilation of new technologies by industry

Talent development

- Continuous upgrading of skills to match technological advancements

STI Impact on Creative Industry

- Continuous opportunities in digital content
- Entertainment is immersive, inclusive, interactive and participative

R&D Focus Areas

- Changes of Creative Industry value chain due to new technologies
- Use of advanced materials and cutting-edge technologies for construction

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APPENDICES

Appendix 1

First Stakeholder Consultative Workshop - Creative Industry Sector (Functional Creations and Media Sub-sectors)

Date : 2nd December 2015

Venue : Riverside Majestic Hotel, Kuching

No	Name	Organisation
1	Lulu Law	Lecturer Faculty Of Design Innovation (FDI) Limkokwing Institute of Creative Technology (LICT)
2	Dexter Mawar	Lecturer Faculty Of Design Innovation (FDI) Limkokwing Institute of Creative Technology (LICT)
3	Kevin Keegan Jerome	Lecturer Faculty Of Communication, Media And Broadcasting (FCMB) Limkokwing Institute of Creative Technology (LICT)
4	Rossalynn Ismail	Lecurer / Team leader Faculty Of Communication, Media And Broadcasting (FCMB) Limkokwing Institute of Creative Technology (LICT)
5	Denise Lee Hui Huang	Lecturer Faculty Of Architecture & The Built Environment (FABE) Limkokwing Institute of Creative Technology (LICT)
6	Shusheel Kaur	Lecturer Faculty Of Architecture & The Built Environment (FABE) Limkokwing Institute of Creative Technology (LICT)
7	Ifa'iza Mohd Shahdad	Lecturer Faculty Of Business Management And Globalisation (FBMG) Limkokwing Institute of Creative Technology (LICT)
8	Hazlan Salleh Baihaki	Lecturer Faculty Of Information & Communication Technology (FICT) Limkokwing Institute of Creative Technology (LICT)
9	Prof. Madya Dr June Ngo Siok Kheng	Faculty of Applied and Creative Arts Universiti Malaysia Sarawak (UNIMAS)
10	Dr Qistina Donna Lee Abdullah	Faculty of Applied and Creative Arts Universiti Malaysia Sarawak (UNIMAS)
11	Dr Seah Lay Hong	Director Jabatan Kimia, Kuching
12	Mr Phoon Yoong Keat	Jabatan Kimia, Kuching
13	Mdm Aishah Bt Abdul Aziz	Jabatan Kimia, Kuching
14	Mr Haburi bin Hamdan	Timbalan Pengarah Jabatan Meteorologi Malaysia Sarawak
15	Mr Ganut ak Sin'Ngot	Jabatan Meteorologi Malaysia Sarawak
16	Mr Chin Ah Ka	Jabatan Meteorologi Malaysia Sarawak
17	Pn Suhailah Zaafar	Unit Perancang Negeri JKM
18	En Awangku Merali Pg Mohamed	TEGAS/ WDU JKM
19	Pn Yusnifah Binti Supiee	WDU/ JKM
20	En Dolhadi Mazuki	JKM
21	En Zulkarnain Ismail	JKM
22	Mdm Ranong Peru	Deputy President Sarawak Women Visionary Entrepreneurs Association SARANITA
23	Mr Malik Mohd Fadjiar	Sarawak Women Visionary Entrepreneurs Association SARANITA

Appendix 2

Second Stakeholder Consultative Workshop - Creative Industry Sector (Functional Creations and Media Sub-sectors)

Date : 3rd December 2015

Venue : University College Sabah Foundation, Kota Kinabalu

No	Name	Organisation
1	Mr Andrew Ambrose @ Atama	CEO of BOMP SDN & ATAMAKATAMA Inc. Majlis Perunding Industri Kreatif Sabah
2	Ms Lydia Anthony Lijua	Borneo MAD Incubator
3	Mr Azmy Taufeck	Borneo MAD Incubator
4	Mr Vesta V Jsol	N. Sabah Timur
5	Dr Alan Lim	Dean Faculty Of Management And Entrepreneurship UCSF
6	Mr Sylvester Fung	Business Developemnt & Skills Training Manager UCSF
7	Mr Peter Chua	CEO Malaysia Music Teachers Training College
8	Dr Janet Lee	Malaysia Music Teachers Training College
9	Mr Ng Teck Yeong	Malaysia Music Teachers Training College
10	Mdm Marina Abd Ghanie	HOD Sabah Animation Creative Content Centre (SAC3) UCSF
11	En Abdul Jamil Ahmad	HOD Sabah Animation Creative Content Centre (SAC3) UCSF
12	Mr Roger Wang	Society Performing Art KK(SPARKS)
13	Datuk Mohd Basri Abdul Gafar	President Federation Of Sabah Industries
14	Ms Karmilla Amirkhan	Dep. Director Malaysian Communications and Multimedia Commission (MCMC) Sabah and Labuan FT Region
15	Mr Appri bin Beyan	Ketua Bahagian Bahagian Sains Gunaan Dan Kesihatan Alam Sekitar Jabatan Kimia Sabah
16	Mr Mohd Helmi Hussaini bin Dullah @ Mohd Rashid	Pegawai Sains Seksyen Jabatan Kimia Sabah Kem. Pembangunan Sumber dan Kemajuan IT (Sabah)
17	Mr Disney Edward Lai	Ketua Bah. KSIT Kem. Pembangunan Sumber dan Kemajuan IT (Sabah)
18	Mr Abdul Halim bin Aklee	Research Officer Institute for Developmental Study (IDS)
19	Mr Alden Alex Raymond	Research Officer Institute for Developmental Study (IDS)
20	Pn KamiliamKamaruzaman	IDS
21	Pn Veronica J Oligi	IDS
22	Dr Rahimatsah Amat FASc	ASM Fellow

Appendix 3

Third Stakeholders Consultative Workshop - Creative Industry Sector (Functional Creations and Media Sub-sectors)

Date : 21st January 2016

Venue : Cititel Penang Hotel, Penang

No	Name	Organisation
1	Ms Mawarni binti Abdul Rahman	Jabatan Kimia Malaysia Cawangan Pulau Pinang
2	Mr Haznan bin Hashim	Jabatan Kimia Malaysia Cawangan Pulau Pinang
3	Puan Bharathi a/p Suppiah	Timbalan Pengurus Besar, Unit Perbadanan Ketua Menteri Pulau Pinang (CMI)
4	Mr Kenny Chua	Game Pro International Sdn Bhd
5	Ms Lisa Case	Festival Manager Joe Sidek Productions c/o Georgetown Festival
6	Ms Carey Ooi	PR/Marketing Manager Joe Sidek Productions c/o Georgetown Festival
7	Mr Kenny Ng	Programme Coordinator Joe Sidek Productions c/o Georgetown Festival
8	Mr YC Ooi	Admin & HR Manager Joe Sidek Productions c/o Georgetown Festival
9	Mr Kee Jet Shon	Business Development Director Orange Media Enterprise Sdn Bhd
10	Mr Teo Seng Siang	Director Orange Media Enterprise Sdn Bhd
11	Mr Tan Keh Wai	Director Orange Media Enterprise Sdn Bhd
12	Ms Leong Wai Yin	Game Pro International Sdn Bhd
13	Prof. Madya Dr. Mona Masood	Pusat Teknologi Pengajaran & Multimedia Universiti Sains Malaysia
14	Puan Zunairah Mokhtar	Pusat Teknologi Pengajaran & Multimedia Universiti Sains Malaysia
15	Encik Ridzawan Abdullah	Pusat Teknologi Pengajaran & Multimedia Universiti Sains Malaysia
16	Mr Saiful Haizad B Ahamad Jainid	Creative Design House, USM
17	Mr Azrie Azeem Abdul Wahab	Creative Design House, USM
18	Mr Adu Hanafi Azmi Adli	Creative Design House, USM
19	Mr Felix Chuah Kay Leong	Marketing & Business Development Director Equator College
20	Associate Professor A Rahman Mohamed	Lecturer Universiti Sains Malaysia

Appendix 4

Fourth Stakeholder Consultative Workshop - Creative Industry Sector (Functional Creations and Media Sub-sectors)

Date : 22nd Feb 2016

Venue : Academy of Sciences Malaysia, Kuala Lumpur

No	Name	Organisation
1	Mr. Zulkifli Abd Rashid	Akademi Seni Budaya dan Warisan Kebangsaan (ASWARA)
2	Mr Suzlee Ibrahim	Akademi Seni Budaya dan Warisan Kebangsaan (ASWARA)
3	Professor Madya Dr. Azimin Tazilan	Designer/Inventor/Artist /Director Universiti Kebangsaan Malaysia (UKM)/ Ultranovate (MTDC-UKM)
4	Pn Farah Syakira	Universiti Kebangsaan Malaysia (UKM)
5	Pn Siti Ezaleila Mustafa	University of Malaya (UM)
6	Dr Tan Swee Lian FASc	
7	Prof Dato' Dr Ahmad Haji Zainuddin	Chairman Malaysia Design Council (MRM)
8	En Shukri Rifale	Senior Director Malaysia Design Council (MRM)
9	Mr Asri Ahmad	Malaysia Design Council (MRM)
10	Dr Chandran Elamvazuthi	Senior Director MIMOS Berhad
11	Mr Rodzuan B. Ismail	National Department for Culture & Arts, Ministry of Tourism and Culture (MOTAC)
12	Mr Mohd Sukarno B. Abd Wahab	National Department for Culture & Arts, Ministry of Tourism and Culture (MOTAC)
13	Mr Stephen Poon	Malaysian Invention and Design Society (MINDS)
14	Mr Bazil Akmal Bidin	The International Game Developers Association (IGDA) Malaysia
15	Mr Ashish Kale	Business Director Asia Marketing Solutions Sdn Bhd
16	Mr Joseph Foo	Founder Trinity Visual Communications Sdn Bhd
17	Mr Dirk Luebbert	Group CEO Mellooi Creation Sdn Bhd
18	Mr Tan Chiang Loong	Ed-Online Technologies Sdn Bhd
19	Mr Shamsul Mizan bin Hj Mohamad Sidik	Ed-Online Technologies Sdn Bhd
20	Ms Arfah Hani Abdullah	Writer
21	Ir Dr Kribanandan Gurusamy Naidu	Managing Director JTK Consult Sdn Bhd
22	Mr M Jalallul Alam Jasni Zain	Manager Market and Business Intelligence Corporate Strategy
23	Dato' Kamil Othman	DG Finas

Appendix 5

Fifth Stakeholder Consultative Workshop - Creative Industry Sector (Functional Creations and Media Sub-sectors)

Date : 24th February 2016

Venue : Persada Johor International Convention Centre, Johor Bahru

No	Name	Organisation
1	Mr Safuan bin Yusof	Director Corporate Services Iskandar Regional Development Authority (IRDA)
2	Puan Aidah Ahmad Adzmi	Vice President, Economics & Investment (Creative Sector) Iskandar Regional Development Authority (IRDA)
3	Mr Khairil Ahmad Bin Dato' Kamil Ahmad	Creative Sector Manager II Iskandar Regional Development Authority (IRDA)
4	Puan Maimunah Jaffar	Head Planning & Compliance Iskandar Regional Development Authority (IRDA)
5	Ms Faezah Ayub	Iskandar Regional Development Authority (IRDA)
6	Mr Zulkefly B. Songip	Director SIRIM Johor
7	Mr Amirzudi bin Hashim	Director Malaysian Meteorological Department Johor
8	Puan Suzalina Binti Kamaruddin	Malaysian Meteorological Department Johor
9	En Ahmad Azhar Abdul Hamid	UPEN Johor
10	En Mohamad Syarifuddin Bin Mohamad	KPRJ
11	Pn Siti Shahirah Nasir	KPRJ
12	Mr Rezal Adzlyabdul Rahman	CEO Pinewood Iskandar Malaysia Studios Sdn Bhd
13	Dr Carlos Velasco	Imagineering Institute (IDM Lab Sdn Bhd)
14	Dr Kasun Tejitha Karunanayaka	Imagineering Institute (IDM Lab Sdn Bhd)
15	Mr Kotaro Tomisato	CEO Imagica South East Asia Sdn Bhd
16	Professor Dr. Ali bin Selamat	Director Centre of Information & Communication Technology (CICT) Universiti Teknologi Malaysia (UTM)
17	Mr Akmal	Multimedia Universiti (MMU), Nusajaya Campus
18	Dr Khairul Anwar Mohamed Khaidzir	Research Fellow Centre for the Study of Built Environment in the Malay World (KALAM) & MaGIC-X
19	Dr Farhan Mohamed	Chief Technology officer MaGIC-X
20	Ms Azyan Zafyrah binti Mohd Zahid	Lecturer Fakulti Kejuruteraan Awam Universiti Teknologi MARA Kampus Pasir Gudang, Johor
21	Dr Beh Cheng Siew	Creative Design Centre (CDeC) Politeknik Ibrahim Sultan
22	Dr Prasanna Kesaran	Creative Design Centre (CDeC) Politeknik Ibrahim Sultan

Appendix 6

Sixth Stakeholder Consultative Workshop - Creative Industry Sector (Functional Creations and Media Sub-sectors)

Date : 22nd March 2016

Venue : TH Hotel and Convention Centre, Kuala Terengganu, Terengganu

No	Name	Organisation
1	Puan Mazlina Bt Mokhtar	Chief Executive Kolej Teknologi & Inovasi KRIM (KCTI)
2	Mr Ismahafezi Ismail	Head of Academic KCTI
3	Ms Annazihah Bt Nawi	Lecturer KCTI
4	Puan Aini Khainani Mohd Salleh	Programme Coordinator KCTI
5	Ms Wan Norliana Wan Abdullah	Academic Affairs Officer KCTI
6	Mr Mohd Fadli Ariffin	Lecturer KCTI
7	Mr Mohd Badrul Nizam B. Shamsudin	Cosmopoint College Kuala Terengganu
8	Mr Mohd Raihan bin Zol	Cosmopoint College Kuala Terengganu
9	Mrs Adoraina binti Embong@Adanan	Kolej Komuniti Kuala Terengganu
10	Pn Wan Nordini binti Wan Mansor	Kolej Komuniti Kuala Terengganu
11	Pn Syadiah Nor Shamsuddin	UNISZA
12	Pn Wan Malini Wan Isa	UNISZA
13	Pn Azilawati Rozaimee	UNISZA
14	En Kamal Hilmi Bin Ngah	Cosmopoint College Kuala Terengganu
15	Mr Mohd Izuddin Mansor	Penolong Pengarah MET Terengganu
16	Engku Faizal Fitri bin Engku Ngah	Animation Director Redang Digital Sdn Bhd
17	Mr Muhammad Hadi bin Mohd Ali	Redang Digital Sdn Bhd
18	Ms Mazita binti Mamat	Redang Digital Sdn Bhd
19	Mr Tuan Mohd Suzaidi bin Tuan Mohd Rosidi	Redang Digital Sdn Bhd
20	Mr Tuan Mohd Zamzuri bin Tuan Noh	Redang Digital Sdn Bhd
21	En Mohd Hazrul Bin Mat Tajuddin	TRG Creative
22	En Zulfikri M Kharudin	TRG Creative
23	En Lumkan Hakim Bin Salleh	Printmaster

Appendix 7

Attendance at Creative Industry Sector's Teh Tarik Talk Series (I) on the Creative Industry towards 2050

Date: 28th October 2015

Venue: Academy of Sciences Malaysia, Kuala Lumpur

No.	Name	Affiliation	Topic
1.	Prof. Em. Datuk Dr Mazlan Othman FASc (Moderator)	Project Director of Mega Science 3.0	-
2.	Tan Sri Johan Jaaffar (Panelist)	Media Expert	Overview of the Creative Industry of Malaysia
3.	Puan Sri Tiara Jacquelina Eu Effendi(Panelist)	President and group CEO, Enfiniti Vision Media Sdn Bhd	Technology Takes the Stage – Performing Arts towards 2050
4.	Mohd Nizam bin Abd Razak (Panelist)	CEO, Animonsta Studios Sdn Bhd	Youth and the Media towards 2050
5.	Dirk Luebbert (Panelist)	Group CEO, Mellooi Creation Sdn Bhd	Technology and Fashion towards 2050

No.	Name	Organisation
1.	Hazami Habib	Academy of Sciences Malaysia
2.	Ir Lalchand Gulabrai FASc	ASM Fellow
3.	Academician Emeritus Professor Tan Sri Datuk Dr Omar Abdul Rahman FASc	ASM Fellow
4.	Academician Datuk Fateh Chand FASc	ASM Fellow
5.	Academician Datuk Ir Hong Lee Pee FASc	ASM Fellow
6.	Associate Professor Dr Yazrina Yahya	ASM Associates
7.	Dr. Muhizam Mustafa	Functional Creations Sub-sector Expert, Universiti Sains Malaysia
8.	Thomas Ducos	Enfiniti Vision Media Sdn Bhd
9.	Shida Mahadi	Enfiniti Vision Media Sdn Bhd
10.	Prof. Mohd Anis Md Nor	Managing Director, Nusantara Performing Arts Research Center (NusParc)
11.	Eng Sek San	SEKSAN Design
12.	Saw Seong Chin	Chin Jewellery Designer
13.	Prof. Madya Dr. Azimin Samsul bin Mohd Tazilan	Jabatan Seni Bina, Fakulti Kejuruteraan & Alam Bina, UKM
14.	Joseph Foo	Trinity Visual Communications Sdn Bhd
15.	Low Huoi Seong	Vision Animation Sdn Bhd
16.	Nik Kamaruzaman Nik Husin	Kementerian Komunikasi Dan Multimedia Malaysia (KKMM)
17.	Hasnul Hadi Samsudin	Multimedia Development Corporation (MDeC) Sdn Bhd
18.	Dr. Fadhlullah Suhaimi Abdul Malek	Performance Management & Delivery Unit (PEMANDU)
19.	Prof. Zaharom Nain	Faculty of Arts, University of Nottingham Malaysia Campus
20.	Dr. Thomas Barker	Faculty of Arts, University of Nottingham Malaysia Campus
21.	Dr. Joanne Lim Bee Yin	Communications and Media Studies, Monash University Malaysia

Appendix 8

Attendance at Creative Industry Sector's Teh Tarik Talk Series (II) on the Future of Malaysian Arts

Date: 15th March 2016

Venue: Academy of Sciences Malaysia, Kuala Lumpur

No.	Name	Affiliation	Topic
1.	Prof. Em. Datuk Dr Mazlan Othman FASc (Moderator)	Project Director of Mega Science 3.0	-
2.	Prof. Dato' Mohamed Najib bin Ahmad Dawa (Panelist)	Director General, National Visual Arts Gallery	The Future Of Malaysian Visual Arts
3.	Assoc. Prof. Jalaini Abu Hassan(Panelist)	Faculty of Art and Design, UiTM Shah Alam	The Future of Malaysian Visual Arts from an Artist's Perspective
4.	Dato' Faridah Merican (Panelist)	Executive Producer & Co-Founder, KLPAC	The Future of Malaysian Performing Arts from a Private Sector's Perspective
5.	Mr Joseph Christopher Hasham (Panelist)	Artistic Director & Co- Founder, KLPAC	

No	Name	Organisation
1.	Academician Tan Sri Dr Salleh Mohd Nor FASc	ASM Fellow
2.	Prof. Madya Dr. Azimin Mohd Tazilan	Ultranovate (MTDC - UKM)
3.	Assoc. Prof. Salmah Abu Mansor	Institute of Ethnic Studies (KITA) UKM
4.	Prof. Zaharom Nain	Faculty of Arts, University of Nottingham Malaysia Campus
5.	Stephanie Two	Taylor's University College
6.	Aiwa Romy	Taylor's University College
7.	Dr. Sean Matthews	University of Nottingham, Malaysia
8.	Mohd Shahrul Izwan	
9.	Joseph Foo	Trinity Visual Communications Sdn Bhd
10.	Mark Beau de Silva	KLPAC
11.	Farhad Alkaff	Enfiniti Vision Media Sdn Bhd
12.	Dr. Wong Oi Min	Akademi Seni Budaya dan Warisan Kebangsaan (ASWARA)
13.	Dato' Leela Mohd Ali	Yayasan Budi Penyayang Malaysia
14.	Ariff Farhan Doss	Yayasan Budi Penyayang Malaysia
15.	Prof. Dr. Mohd Anis Md Nor	Nusantara Performing Arts Research Center (NusPArc)

Appendix 9

Attendance at Creative Industry Sector's Teh Tarik Talk Series (III) on the Future of Traditional Arts and Crafts

Date: 24th March 2016

Venue: Academy of Sciences Malaysia, Kuala Lumpur

No.	Name	Affiliation	Topic
1.	Prof. Em. Datuk Dr Mazlan Othman FASc (Moderator)	Project Director of Mega Science 3.0	-
2.	Mr. Yong Yoon Li (Panelist)	Executive Director, Royal Selangor International Sdn Bhd	The Future of Pewter Industry in Malaysia
3.	Mr. Ariff Farhan Doss (Panelist)	General Manager, Yayasan Budi Penyayang Malaysia	The Future of Batik Industry in Malaysia
4.	Mdm Heidi Munan (Panelist)	Hon. Curator of Beads, Jabatan Muzium Sarawak	The Future of Sarawak Arts and Crafts
5.	Mr Abdul Halim bin Ali (Panelist)	Director, Kraftangan Cawangan Negeri Sembilan	The Future of Traditional Arts and Carving

No.	Name	Organisation
1.	Datuk Seri Victor Wee	Sectoral Leader of Tourism Industry Sector / Taylor's University
2.	Hasnul J Saidon	National Visual Art Development Board
3.	Dato' Leela Mohd Ali	Yayasan Budi Penyayang Malaysia
4.	Rozaini Omar	Yayasan Budi Penyayang Malaysia
5.	Dayang Mordiana binti Abang Ahmat	Malaysian Handicraft Development Corporation
6.	Mohd Hafiz bin Abdul Halim	Malaysian Handicraft Development Corporation
7.	Khairul Anuar bin Ahmad Joki	Malaysian Handicraft Development Corporation
8.	Mohamad Nasser bin Baharin	Malaysian Handicraft Development Corporation
9.	Mohd Syahrul Ab. Ghani	Department of Muzeums Malaysia
10.	Nor Asmah binti Abu Samah	Department of Muzeums Malaysia
11.	Noorhashafinaz binti Mohd Noor Azmi	Department of Muzeums Malaysia
12.	Syed Jamaludin Syed Mohd Amin	Malaysian Handicraft Development Corporation, Negeri Sembilan Branch
13.	Nazmir Jamaludin	Malaysian Handicraft Development Corporation, Negeri Sembilan Branch
14.	Razali Ishak	Malaysian Handicraft Development Corporation, Negeri Sembilan Branch
15.	Zanita Anuar	National Visual Art Development Board
16.	Marie Tseng	Cultural Impact Sdn Bhd
17.	Raphaelle Tseng	The Alice Smith School
18.	Assoc. Prof. Salmah Abu Mansor	Institute of Ethnic Studies (KITA) UKM
19.	Joseph Foo	Trinity Visual Communications Sdn Bhd
20.	Rose Ismail	Journalist/Writer
21.	Tunku Alizakri Alias	PAN Productions

Appendix 10

Attendance at Creative Industry Sector's Teh Tarik Talk Series (IV) on the Future of Museums

Date: 5th April 2016

Venue: Academy of Sciences Malaysia, Kuala Lumpur

No.	Name	Affiliation	Topic
1.	Prof. Em. Datuk Dr Mazlan Othman FASc (Moderator)	Project Director of Mega Science 3.0	-
2.	YM Dr. Tengku Siti Meriam Tengku Wook (Panelist)	Programme Coordinator (Multimedia System), Faculty of Information Science & Technology, UKM	The Future of Virtual Museums
3.	Assoc. Prof. Dr. Nor Azan Mat Zin (Panelist)	Head of Multimedia Software and Usability Research Group, Faculty of Information Science & Technology, UKM	
4.	Mhd Fairos Assilam (Panelist)	Director, Bahagian Pendidikan Sains Angkasa, Agensi Angkasa Negara	Impacts of Science and Technology on Planetarium
5.	Saiful Bahri B Baharom (Panelist)	Director of Strategic Planning and Science Advisory, Petrosains	Impacts of Science and Technology on Science Centers

No.	Name	Organisation
1.	Datuk Dr Mohamed Arif Nun FASc	ASM Fellow
2.	Dr Francis S.P. Ng FASc	ASM Fellow
3.	Raphaelle Tseng	The Alice Smith School
4.	Marie Tseng	Cultural Impact Sdn Bhd
5.	Muhd Hidayat Saad	Leading Consultancy
6.	Ahmad Fuad Hamzah	Urban Explorer
7.	Assoc. Prof. Salmah Abu Mansor	Institute of Ethnic Studies (KITA) UKM
8.	Prof. Harold Thwaites	Faculty of Arts, Sunway University
9.	Delas Santano	Faculty of Arts, Sunway University
10.	Zahirah Noor Zainal Abidin	Museum of Asian Arts, University of Malaya
11.	Alizam bin Hasan	National Visual Art Development Board
12.	Amerrudin bin Ahmad	National Visual Art Development Board
13.	Zanita Anuar	National Visual Art Development Board
14.	Erika binti Saiful Bahri	Malaysian Technology Development Corporation Sdn Bhd
15.	Mohd Jalallul Alam @ Jasni Zain bin Mohd Isa	Multimedia Development Corporation (MDeC) Sdn Bhd
16.	Ruslah binti Khalid	Malaysian Handicraft Development Corporation
17.	Raudzah binti Mohd Said	Malaysian Handicraft Development Corporation
18.	Raja Mohammad Adhzim Raja Ahmad	Centre of Excellence, FINAS
19.	Mohamad Hadi Hafis Mohamad Jamil	FINAS
20.	Mohd Azfar Mohd isa	FINAS
21.	Miti Fateema Sherzeela Mohd Yusoff	Department of Museums Malaysia
22.	Mohd Syahrul bin Ab. Ghani	Department of Museums Malaysia
23.	Azni Zainal Abidin	Petrosains
24.	Quzailah bin Abdul Rahman	Malaysia Design Council

Appendix 11

Attendance at Creative Industry Sector's Teh Tarik Talk Series (V) on the Future of Films

Date: 4th August 2016

Venue: Academy of Sciences Malaysia, Kuala Lumpur

No.	Name	Affiliation	Topic
1.	Dato' Kamil Othman (Moderator)	Director General, FINAS	-
2.	Lina Tan Suan Jeu (Panelist)	Founder/Producer, Red Communications Sdn Bhd	The Future of Malaysian Film-making
3.	Najwa Abu Bakar (Panelist)	Vice President Business Development for Astro Malaysia Holdings and Head of Astro Shaw Sdn Bhd	The Business of Film and Nurturing Creative Talent
4.	Umapagan Ampikaipan (Panelist)	Deejay, BFM 89.9	The Future of Films
5.	Diffan Sina Norman (Panelist)	Consulting Executive Director, Spaceboy Studios Sdn Bhd	Rise of Genre Films
6.	Prof. Em. Datuk Dr Mazlan Othman FASc	Project Director of Mega Science 3.0	Disruptive Technologies of the Future: The Need to Strategise the Response of the Malaysian Film Industry

No.	Name	Organisation
1.	Academician Tan Sri Dr Salleh Mohd Nor FASc	ASM Fellow
2.	Jazmi Izwan Jamal	Fakulti Animasi dan Multimedia, ASWARA
3.	Siti Noraisyah Abd Rahman	Fakulti Animasi dan Multimedia, ASWARA
4.	Dr. Thomas Barker	University of Nottingham Malaysia
5.	Chong Shick Chuin Elise	University of Nottingham Malaysia
6.	Arvina Irene a/p Anthony Raj	University of Nottingham Malaysia
7.	Sanjit Singh Randhawa	Department of Performance & Media, Sunway University
8.	Mohd Azmyl Md Yusof	Department of Performance & Media, Sunway University
9.	Mark Teh Kah Weng	Department of Performance & Media, Sunway University
10.	Dale Majid	Enfiniti Vision Media Sdn Bhd
11.	Chedd Yusoff	Enfiniti Vision Media Sdn Bhd
12.	Khairul Anuar Shaharudin	Khairul, Suhaila & Haslina (Advocates & Solicitors)
13.	Sivanantham Perianan	Ministry of Plantation Industries & Comodities
14.	Shanjhey Kumar s/o Perumal	Skyzen (M) Sdn Bhd
15.	Noraini Zainal Abidin	Red Communications Sdn Bhd
16.	Anne Low	Astro Shaw Sdn Bhd
17.	Mohd Jamil	Astro Shaw Sdn Bhd
18.	Dr. Azimin Samsul bin Mohd Tazilan	Ultranovate Sdn Bhd
19.	Farah Adibah binti Mohamad	Ultranovate Sdn Bhd
20.	Alya Farina binti Ahmad	Ultranovate Sdn Bhd
21.	Zuraini Anuar	mhzXPROJECTS Sdn Bhd

No.	Name	Organisation
22.	Abdul Hamid Abdul Rahman	mhzXPROJECTS Sdn Bhd
23.	Rafi Rahman	FINAS
24.	Idris Torman	FINAS
25.	Mohd Hadi Hafis Mohamad Jamil	FINAS
26.	Dr. Fadhlullah Suhaimi Abdul Malek	Performance Management & Delivery Unit (PEMANDU)
27.	Khairil Ahmad bin Dato' Kamil Ahmad	Iskandar Regional Development Authority (IRDA)
28.	Haziq Hamdan	FINAS
29.	Mohd Akram Ismail	FINAS
30.	Milyana binti Arshad	Jabatan Kebudayaan Dan Kesenian Negara (JKKN)
31.	Nik Kamaruzzaman Nik Husin	Kementerian Komunikasi Dan Multimedia Malaysia (KKMM)
32.	Zanita Anuar	National Visual Art Development Board
33.	Dato' Mohd Mahyidin bin Mohd Mustakim	Creative Content Association Malaysia (CCAM)
34.	Rahmat bin Adam	Creative Content Association Malaysia (CCAM)